

# **Industrial Cluster Development: The Role of Government in a Regional Australian Economy**

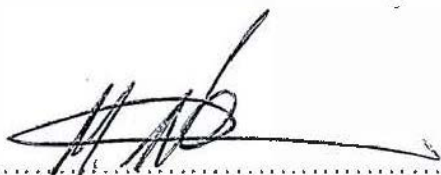
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Submitted in fulfilment of the requirements for the degree of  
Doctor of Philosophy  
University of Tasmania  
(January, 2004)

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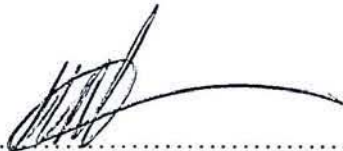
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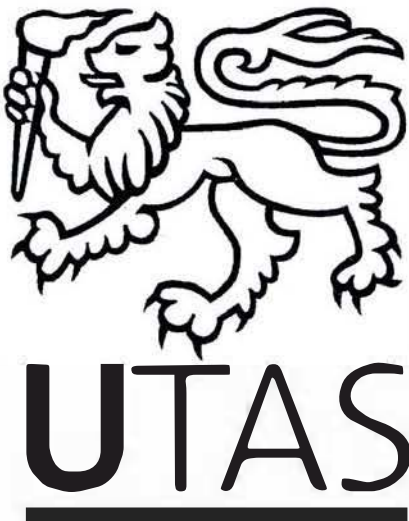
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## ABSTRACT.

Since its publication in 1990, many governments throughout the world have used Michael Porter's Industrial Cluster Theory (ICT) as a tool in national and regional economic development. Australian federal and state governments are no exception, and in the last decade, there have been numerous attempts to improve Australia's economic development with implementations of ICT. Most of these efforts have been of limited success, with Australia's record at developing industrial clusters well below the OECD average. One of the major reasons for this has been difficulty in using Porter's theory, and in particular his ideas concerning the role of government, in industrial cluster development.

This observed difficulty provides the research opportunity for this thesis. This study focuses on the role that the Tasmanian state government played in the development of one of Australia's most successful industrial clusters, the Tasmanian Light Shipbuilding Industry (TLSI) cluster. The study was conducted as a longitudinal embedded single case study, and included interviews with 25 key informants. Six of these were current heads of Tasmanian government departments (including the TLSI cluster's training facilities); five were ex-state premiers spanning the TLSI cluster's history (1977-1998); one was the current state premier (1998 – present); three were senior bureaucrats that had served the state parliament from 1977-1998; one was an incumbent federal Member of the House of Representatives for Tasmania that has served since 1977; and finally, the nine founding managers of the TLSI cluster's private sector firms (all of whom were still in charge of their organisation in 2002).

In order to address the research opportunity, this thesis answers two research questions. The first research question was: What role did the Tasmanian Government play in the development of the TLSI cluster since its inception in 1977? The answers to this question found a distinct set of government roles that proved beneficial to the TLSI cluster's over its life cycle. The roles that the Tasmanian government had to play were changeable over this life cycle, and ranged from an initially non-committal stance towards the industry, to one that was heavily involved in its infrastructure requirements. The study also found that the role of chance events in Porter's ICT deserved considerably more prominence than the theory suggested.

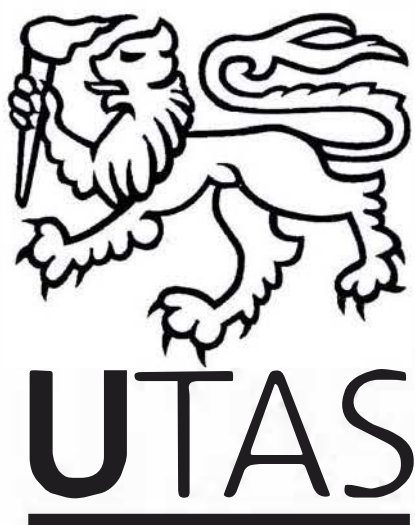
The second research question was: How did the change in the importance of the TLSI cluster to the Tasmanian economy over time impact upon the Tasmanian government's policy development process? The answers to this research question indicated that the relative importance of the TLSI cluster to the Tasmanian economy influenced the degree of government interaction with and development of the industry cluster. In particular, the research indicates how the Tasmanian government's policy choices were related to the perceived needs and political power of the TLSI cluster firms (particularly that of the hub-firm International Catamarans). The degree of social responsibility felt, separately, by International Catamarans and the Tasmanian government was found to be significant in the mix of factors affecting policy and progress.

## ACKNOWLEDGEMENTS.

There are many people to whom I owe thanks for their assistance in the generation of this Thesis. I wish to first express my gratitude to my doctoral supervisor, Dr. Dallas Hanson, for his guidance, encouragement, and example throughout this collaboration. I would also like to thank the case study participants for their generosity and co-operation, without which there would be no research possible. Third, I would like to acknowledge my friends and colleagues at the School of Management at the University of Tasmania. I would especially like to thank Dr. Graeme Tonks for his assistance, as well as my fellow doctoral candidates Stuart Crispin, Stuart Middleton, Wayne O'Donohue, Fuad Ta'eed (a.k.a "the Godfather"), and Megan Woods for their support over the past three years.

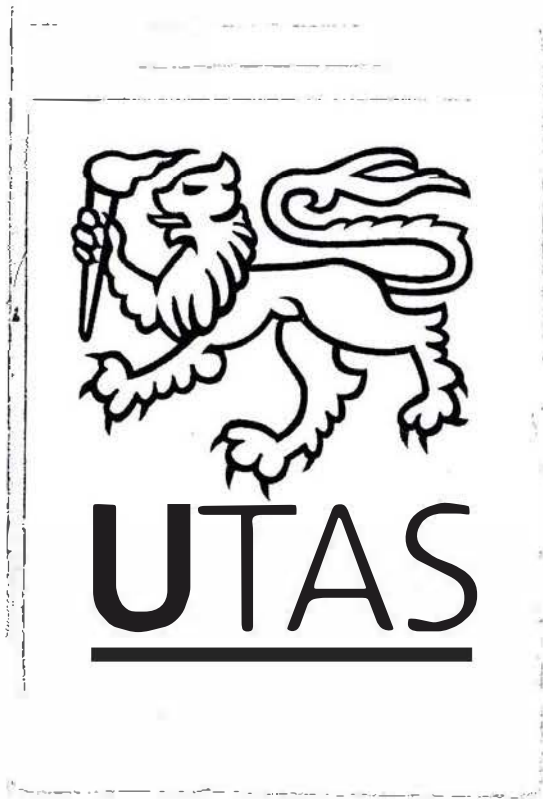
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## LIST OF ACRONYMS.

AMC	Australian Maritime College.
CSIRO	Commonwealth Scientific and Industrial Research Organisation.
DSD	Department of State Development.
EFIC	Export Finance and Insurance Corporation.
ICT	Industrial Cluster Theory.
IDP	Industry Development Plan.
MMIC	Maritime Manufacturing Industry Council.
NIES	National Industry Extension Service (now AusIndustry).
NWBS	North West Bay Ships.
OECD	Organisation for Economic Cooperation and Development.
PVC	Poly-vinyl Chloride
RDM	Richardson and Devine Marine.
TAFE	Technical and Further Education.
TDA	Tasmanian Development Authority.
TLSI	Tasmanian Light Shipbuilding Industry.
TMIP	Tasmanian Maritime Industry Plan.
TMN	Tasmanian Maritime Network.
UNIDO	United Nations Industrial Development Organisation.

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## **CHAPTER ONE.**

### **RATIONALE AND INTRODUCTION TO THE THESIS.**

#### **1.1 OBJECTIVE OF THE CHAPTER.**

The objective of this chapter is to introduce this thesis. The chapter commences with a discussion of the rationale for this thesis. Next, the broad research opportunity is noted and briefly discussed. The chapter concludes with a discussion of the structure of the thesis.

#### **1.2 RATIONALE FOR THE THESIS.**

Since the 1970s, the onrush of globalisation in Australia's markets has presented significant economic policy challenges to the country's federal and state governments (Everett, 2002; Goldfinch, 1999). A major concern for Australian legislators was (and remains) the question as to how to make a nation previously protected by a 'fortress' of tariffs and subsidies more productive and competitive in world markets (Brown, 2000; Edwards, 2002; Martin, 2000). One theoretical framework that achieved prominence in Australian economic policy development in the 1990s, largely due to its intuitive appeal and apparent value in increasing the wealth and competitive advantage of nations, was Porter's (1990) Industrial Cluster Theory (ICT) (Boddy, 2000). As part of his book *The Competitive Advantage of Nations*, Porter argued that for a modern economy to advance within a globalised marketplace, it needed to foster innovative industries able to compete successfully on an international scale. In order to best achieve this, Porter argued governments needed to recognise



and facilitate the growth of innovative industry clusters, particularly those enjoying some level of local advantage that could not be readily imitated elsewhere. In Australia, this belief was expressed in the federal government's manufacturing reports, which introduced Porter's notion of industrial cluster development into government policy by proposing the development of regional industry partnerships that strengthened networks, encouraged innovation, and the inter-firm transfer of technology (Australian Manufacturing Council, 1994; Bureau of Industry Economics, 1991).

Further to this, in 1993, a federal government investigation into the requirements of a sustainable economic development strategy for the nation highlighted the need for Australia's regional economies to similarly optimise their economic productivity by developing their localised advantages (Keating, 1994; Kelty, 1993). This was followed by the McKinsey Report 'Lead Local, Compete Global' (McKinsey & Company, 1994) which was the first report to suggest that the industrial clustering concept was an appropriate basis upon which to develop Australia's regional economies to internationally competitive standards. Given the level of investigation and documentation undertaken, it is apparent that successive Australian governments believed the conditions leading to the formation of internationally competitive 'wealth-generating' industry clusters (such as the internationally renowned 'Silicon Valley' in the United States) could be replicated to help foster the inception and growth of new Australian industries, and to re-engineer older ones to world standards (Ivarsson, 1999).

### ***1.2.1 Industrial cluster development: The Australian experience.***

Despite the widespread adoption of industrial cluster policy by federal and state governments over the past decade, Australia remains significantly below the OECD average in terms of its industrial clusters' economic contributions to real wealth creation (Brown, 2000; OECD, 1998a; Porter, 2002, cited in James, 2002). One of the major reasons cited for this relatively poor performance has been the observed difficulty in mobilising the tenets of Porter's ICT as an effective framework for industrial cluster policy development in Australia (Brown 2000; Enright & Roberts, 2001). Indeed, Brown (2000) suggests Australia's poor performance is almost entirely predicated on the inability of its legislators to conceptualise their role within Porter's ICT framework. Brown's (2000:13) comment that Australian governments have displayed a "very confused role" in their industrial cluster policy development was echoed by Porter in 2002, when he stated: "Australia does not have a strategy for competing in the global economy, and is not doing what is necessary to get one" (in James, 2002: 13).

The issues associated with the Australian experience at industrial cluster development, however, are not unique in the literature. Since the inception of Porter's ICT paradigm, there has been considerable literary debate concerning the theory's ability to provide a practical framework for government in its efforts to develop internationally competitive industrial clusters (see for example, Baptista, 1996; Boddy, 2000; Gordon & McCann, 2000; Lyons, 1995; Schweke, 1995; Wejland, 1999; Yla-Anttila, 1994). Much of the literary debate has resulted in either the dismissal of Porter's ICT as a useful framework for policy development (for example, see Yetton, Craig, Davis & Hilmer, 1992), or have merely introduced a collection of

generalised ‘macro-economic’ roles for government to play, without offering a definitive set of guidelines for practitioners to use in their development of regionally-based industrial clusters (Lyons, 1995; Markusen, 1996; Peters & Hood, 2000). What is lacking in the literature, and therefore the research opportunity for this thesis is the provision of a clearly defined ‘role of government’ within Porter’s ICT. In terms of advancing Porter’s ICT to incorporate a definitive ‘role of government’ in a regional Australian economy, Porter himself notes:

...in Australia, what is less understood is that the government has some positive roles, like innovation and training, infrastructure, and things like that. I think that the real frontier is [understanding] the positive roles to be played by government whilst avoiding the distortion or intervention in competition (in Trinca, 2002:39).

### ***1.2.2 Industrial cluster development: Investigating the role of an Australian state government.***

In order to understand the positive role that an Australian government can play in the industrial clustering process, this thesis will undertake an examination of the 25-year history of one of Australia’s most successful industry clusters, that of the Tasmanian Light Ship Industry (TLSI) cluster (Industry Audit, 1998). In 2002, the TLSI cluster comprised eleven entities – International Catamarans (a producer of fast-ferry catamarans); Colbeck & Gunton (a producer of maritime fire protection equipment); APCO Engineering (a maritime ‘cast and machined component’ manufacturer); Liferaft Systems (a producer of maritime safety equipment); Riley Industrial & Marine Sales (a marine hydraulics manufacturer); Richardson Devine Marine (a producer of aluminium pleasure-craft); Muir Engineering (a producer of winches and associated maritime machinery); FC Management (a mono-hull passenger ferry manufacturer); North West Bay Ships (a producer of a diverse range of aluminium

passenger ferries); the Australian Maritime College; and the TAFE Aluminium Welding School (Industry Audit, 1998).

The value of the TLSI cluster to the regional Tasmanian economy is beyond question. Since its inception in 1977, the TLSI cluster has grown substantially in terms of both its sales volume and innovative output (Industry Audit, 1998). At its peak in 1996, the TLSI cluster alone generated an annual turnover of AUD\$400 million in export earnings for the Tasmanian economy (23 percent of the state's merchandise exports), and directly and indirectly employed approximately 2 500 people (Industry Audit, 1998). The TLSI cluster also boasts the world's leading manufacturer of high-speed aluminium ferries, International Catamarans, which at the peak of the industrial cluster's output, managed to capture 40 percent of the world's passenger ferry market, simultaneously earning the status of being the regional economy's largest private sector employer (Wickham & Hanson, 2002).

Given its demonstrable importance to the Tasmanian economy, an examination of the TLSI cluster's history provides an opportunity to determine the set of Tasmanian government's policy initiatives that were most effective in developing a highly successful industrial cluster in a regional Australian economy. The TLSI cluster case is also useful because it highlights the factors Porter emphasises in his original theory of national competitive advantage, namely the role that 'chance events' play in industrial cluster development, and the notion that governments are required to support a region's economic development.

### 1.3 BROAD RESEARCH OPPORTUNITY.

In line with the preceding discussion, the central research question for investigation in this study is:

*What is the government's role in the facilitation and development of an internationally competitive industrial cluster in a regional Australian economy?*

This broad research question is designed to identify the roles (i.e. policy initiatives) that were undertaken by the Tasmanian government in the facilitation of the state's light shipbuilding industry cluster between 1977 and 2002. More specifically, this broad research question intends to explore how the Tasmanian government supported and advanced the key economic factors identified by Porter that led to the growth of the TLSI cluster, and the manner in which chance events amplified the relative importance of these economic factors. In keeping with the necessarily longitudinal nature of this research, changes in the Tasmanian government's policy over time will also be explored in order to ascertain the beneficial policy initiatives over the 25 year period, and perhaps more importantly, in terms of the TLSI cluster's stage of development. The identification of the Tasmanian government's role could prove useful for any Australian state government in its determination of what agencies to establish, resources to expend, and what competencies to employ in future efforts to facilitate internationally competitive industrial cluster development (Edwards, 2002).

## **1.4 ORGANISATION OF THE THESIS.**

This thesis proceeds in nine chapters. Following this introductory chapter, Chapter Two provides an overview of the history of the industrial clustering concept, focusing on the nature and theoretical development of the government's role in industrial cluster development. The literature review, which incorporates research current to March 2002, will culminate in the generation of the specific research questions to be analysed in this case. Leading on from this, Chapter Three outlines the case method used to gather the necessary data required to answer the specific research questions posed in Chapter Two. In total, the eleven entities that collectively represent the TLSI cluster were studied, along with interviews with five ex-state premiers, the incumbent state premier, three ex-state government department heads directly involved with state development, three current government department heads; one federal member of Parliament; and two ex-government economic advisors. The research is therefore based on the analysis of 25 semi-structured interviews dealing with those individuals most closely associated with the development of the TLSI cluster over the past 25 years.

Chapter Four provides two historical accounts of shipbuilding in Australia. The first is an overview of Australia's history as a shipbuilding nation, and provides the context within which the TLSI cluster was to develop. The second account details the specific development of the TLSI cluster since the foundation of the industry's flagship, International Catamarans, in 1977. The historical accounts are based on both primary and secondary data sources, and serve as the basis for the interview questions posed to the key informants, and the basis upon which the research questions will be analysed.

Chapters Five through Eight provide an analysis of the case data in terms of the Tasmanian government's role in the development of the TLSI cluster over its industrial life cycle. Chapter Five introduces Porter's Diamond Factor model (a framework within which government has a key supporting role), as it existed in relation to the Tasmanian shipbuilding industry in 1977. Chapter Six then discusses the Tasmanian government's role during the introduction stage of the TLSI cluster's life cycle (1977-1984); Chapter Seven the 'growth stage' (1984-1998); and, Chapter Eight the 'maturity stage' (1998-2002). Drawing on the case, and using the computer software package NUD\*IST (version six), the common themes emerging from the interviews are identified and triangulated between respondents. Chapter Nine provides a discussion of the key findings of the thesis. Based on the analysis of the case data, an adaptation of Porter's Diamond Factor model is proposed to reflect the Australian context. The adapted Diamond Factor model is accompanied by a discussion of the theoretical implications of using Porter's ICT as an effective policy development framework for governments in regional Australian economies.

## **CHAPTER TWO.**

### **INDUSTRIAL CLUSTER THEORY: THE ROLE OF GOVERNMENT IN INDUSTRIAL CLUSTER DEVELOPMENT.**

#### **2.1 OBJECTIVES OF THE CHAPTER.**

The objectives of this chapter are four-fold. Firstly, it provides an account of the theoretical development of the industrial cluster concept, and the chapter briefly outlines the history of ICT since its inception in 1890. Secondly, the chapter discusses how the globalisation phenomenon, and the subsequent introduction of Porter's (1990) ICT, fundamentally altered the nature of the industrial clustering concept to embrace government as a key influencer of industrial cluster success. Thirdly, it provides an overview of Porter's ICT, and discusses the theoretical development of the government's role in developing internationally competitive industrial clusters. Finally, as an integration of these theoretical developments, the chapter presents the specific research questions addressed in this thesis.

#### **2.2. INDUSTRIAL CLUSTER THEORY – A BRIEF HISTORY.**

Although Porter's ICT was well received by academics and practitioners alike at the time of its publication, largely due to its apparent value in wealth generation through the development of a nation's competitive advantages, it was not an entirely new theoretical concept. As far back as Marshall's Industrial District Theory (1890; 1916; 1920), Weber's Industrial Location Theory (1909; 1929), and Schumpeter's



Economic Development Theory (1934), theorists have recognised the tendency for complementary firms to position themselves in close geographical proximity (Marshall, 1920; Schumpeter, 1934; Weber, 1929). Three principles were common within classical industrial cluster theories. The first was the assumption of perfect competition and information transfer within the marketplace. The second was that clustered firms tended to locate their operations in particular geographic regions of their home country in order to gain efficient access to labour (amongst other specialised inputs), and to facilitate the sharing of knowledge vital to the industry's innovation process (Birkinshaw, 2000; Peters & Hood, 2000; Walcott, 1999). The third principle was the notable exception of any substantial reference to the government and its influence as a provider of the economic systems and infrastructure capable of supporting the growth of industrial clusters (McLean, 1996).

In particular, Marshall's (1890; 1920) Industrial District Theory explained that the industrial clustering process is based on a firm's self-interested strategy to minimise the distance between its manufacturing operations, the resources it required for production, and the markets it sought to serve. Similarly, Weber's (1929) Industrial Location Theory argued that manufacturing firms would locate their operations in regions that possessed the necessary raw materials for production as well as access to profitable markets. The external economies of scale generated by the clustering firms was considered incidental to the firms' legitimate, self-interested operations, and not from government provision of economic infrastructure (Morgan, Brooksbank & Connolly, 2000). Schumpeter's (1934) Economic Development Theory focused on the advantages associated with sharing of tacit knowledge between the clustered but otherwise self-interested firms. In particular, Schumpeter (1934) identified how the

innovative skills derived from the cooperative process become fundamental in the creation of wealth in the capitalist economic system. Schumpeter (1934) posited that wealth creation was based on the firm's ability to produce innovative consumer goods, develop new methods of production, and to create new consumer markets; tasks that were to be performed by the firm, and without reference to the government's provision of the necessary economic or infrastructural support.

Despite the absence of a role for government in the classical industrial clustering literature, Marshall (1890; 1920), Weber (1929), and Shumpeter's (1934) perspectives remained well accepted academically, receiving only marginal adaptation during the period leading up to the 'globalisation phenomenon' of the 1970s (for example, see Martin, 1966; Myrdal, 1957; Wise 1949; Wood, 1969). The majority of these adaptations were merely definitional in nature and directed at better defining the industrial cluster typologies that were found to exist in different industrial contexts (Aydalot, 1986; Birkinshaw & Hood, 2000; Piore & Sabel, 1984).

### ***2.2.1 Industrial cluster theory and the advent of the globalisation phenomenon.***

The onrush of globalisation since the 1970s (see Rischard, 2002; Waters, 1995), however, flagged the potential end of the economic advantages that firms could derive from the classical industrial clustering process (Fujita & Hill, 1998; Krugman, 1991; Nelson, 1993; Peters & Hood, 2000; Raco, 1999). Given advances in communication and transport technologies, the lowering of trading barriers between nations, and the availability of cheaper labour (and other production inputs) in foreign markets, the efficiencies and economic advantages of industrial clustering in a firm's home country appeared at best diminished, and at worst, obsolete (Gourevitch, Bohn, &

McKendrick 2000; Hill, 2001). Given the commercial implications of the globalisation phenomenon, there was expectation that firms located within relatively high-cost regions, such as Australia and the US, would forgo the industrial cluster advantages established in their home country and locate their operations in regions that presented significant cost advantages, such as Asia and Eastern Europe (Audretsch, 1998). Indeed, during the 1980s, the focus of industrial location literature shifted towards an application to international business, and in particular how the firm could maximise return by investing its manufacturing resources in foreign markets (Aharoni, 1996; Cavusgil, 1991; Dunning, 1995).

### ***2.2.2 The Global Paradox and Porter's competitive advantage of nations.***

One of the most striking inconsistencies to emerge in the literature, however, was the observed 'global paradox' that developed between the disciplines of strategic management and economic development (Audretsch, 1998; Merriden, 1998; Naisbitt 1994). Where strategic management theory emphasised the benefits of relocating firm operations to access the cost-saving advantages available internationally (e.g. comparatively lower wages and less stringent legal requirements), the economic development literature increasingly reported instances of firms establishing their competitive advantage by locating their operations in particular regions of their home country (Enright, 2000; Merriden, 1998). Just as the classical ICTs were unable to predict the onrush of globalisation that was to occur in the 1970s, they were similarly unable to account for the observed global paradox of firm behaviour in a globalised economy (McLean, 1996).

The inability of the classical ICTs to explain the observed firm behaviours of the 1980s culminated in the publication of Porter's (1990) work *The Competitive Advantage of Nations*, a text largely predicated upon the conceptualisation and resolution of the global paradox. In his book, Porter develops the notion of industrial clusters as part of a framework known as the Diamond Factor model of national competitive advantage; a conceptualisation of the interrelated economic factors that explain the competitive success of particular national industries in globalised markets. Porter's ICT argues that a nation's industry will be internationally competitive if a synergistic interrelationship exists between four important Diamond Factor variables: 'factor conditions'; 'local demand conditions'; 'related and supporting industries'; 'firm strategy, structure and rivalry'; and the two influencing roles of chance events and government. The tenets of Porter's ICT, and the role of government within it, are discussed in the following section.

#### *2.2.2.1 Porter's ICT: Factor conditions.*

Factor conditions refer to any primary inputs required by the firm, that is, the basic factors of production such as land, labour and capital, human resources, and infrastructure, which are necessary conditions to compete in an industry (Porter, 1990). Porter distinguishes between a hierarchy of factor inputs, ranging from 'basic and generalised' factor inputs to 'advanced and specialised' factor inputs. Basic factors include items such as natural resources, climate, location and unskilled or semi-skilled labour. Advanced factors include infrastructure, education systems and university research institutes. The question as to whether a factor input is considered 'generalised' as opposed to 'specialised' depends upon its use within the economy. A factor is considered generalised if it can be deployed throughout a wide range of

industries, for example a nation's highway system is regarded as an advanced-generalised factor. A factor input is considered 'specialised' if it can only be used in a limited number of industries, for example narrowly skilled personnel, and infrastructure with specific properties such as a biotechnology research institute.

The distinct mix of factor conditions possessed by an individual nation help to define the industries in which it will be most internationally competitive (Porter, 1990). Theoretically then, a nation will be more likely to generate internationally competitive industries when it possesses an abundance of raw materials that is not similarly possessed elsewhere. For example, the world diamond market is dominated by South African firms due to the natural deposits of diamonds that exist in that country. However, in modern western economies, the forces of globalisation has meant that a firm's competitive advantage is largely derived through advanced-specialised factors of production, such as information and knowledge management, technology, and human capital development (Porter, 1990; 1998a). In western economies therefore, the role of factor inputs in generating a nation's competitive advantage are rather more reliant upon national investment and the establishment of relationship networks between firms and government (Porter, 1990). Given that these factors are of key importance to modern economic development, and are prone to obsolescence, they require continuous upgrading and investment, otherwise firms risk losing the potential of these factors to create a competitive advantage (Clark & Guy, 1998; Yla-Anttila, 1994).

#### *2.2.2.2 Porter's ICT: Demand conditions.*

The second diamond factor, the nation's 'demand conditions', can influence the development of an internationally competitive national industry by ensuring that clustered firms focus on differentiated (and increasingly sophisticated) consumer preferences (Porter, 1990). Sophisticated and discerning consumers are considered particularly important, as they drive the need for quality and high standards of innovation that, in turn, may lead to enhanced market competitiveness. The nation's public sector has an equally important role to play, both as a demanding customer itself, and an establisher of rigid standards concerning a firm's safety, its product quality, and its environmental impact (Porter, 1990). It is an assumption of the Diamond Factor model that only those products performing well in domestic markets characterised by relatively advanced and sophisticated demand, are able to provide a national industry with a competitive advantage internationally.

#### *2.2.2.3 Porter's ICT: Related and supporting industries.*

The third diamond factor, the nation's 'related and supporting industries', refers to those industries within an economy that share common technologies, factor inputs, distribution channels, customers, activities and/or provide products that are complementary in nature to that of the clustering firms (Porter, 1990). Linkages between industries constitute the nexus around which Porter's notion of industrial clusters are formed. Subsequent research indicates that most successful companies in western economies have extensive linkages with other industries, allowing them to improve their international competitiveness (Yla-Anttila, 1994). The more effective the related and supporting industries are in an economy, the greater the value of the

technologies, ideas and human capital development that may ensue within that economy, with industries better able to benefit from these external economies of scale (Porter, 1990).

#### *2.2.2.4 Porter's ICT: Firm strategy, structure and rivalry.*

The fourth diamond factor, 'firm strategy, structure and rivalry' not only fosters the growth of national industries, but also serves as an impetus for increased competitiveness as they create pressure for firms to improve their local competitiveness and innovativeness (Porter, 1990). According to Porter's ICT, rigorous domestic competition helps ensure a precondition for success in international markets, because it forces firms to innovate and prevents them from relying merely on an abundance of natural resources or protection via government intervention policies. The pattern of strategy, structure, and rivalry among firms varies greatly between nations due to cultural differences in business relationships, raw material availability, and type of government intervention (Porter, 1990). In Japan, for example, cooperative and competitive systems have facilitated the cross-functional management of complex assembly operations. In the United States, competition among computer manufacturers and software producers has resulted in the development and international dominance of these industries (Davies, 2001; Porter, 1998b).

Of the four diamond factors, Porter argues that the 'intensity of domestic rivalry' and the nature of its 'related and supporting industries' in particular, are considered of utmost importance in the development of internationally competitive national industry clusters, and therefore able to generate real economic growth. Porter argued that a

nation would be particularly competitive in industries where a set of related and supporting industries are clustered geographically, allowing their interactions to be more complementary and far more dynamic than they might be otherwise. Simultaneously, the intensity of the domestic rivalry between firms promotes the upgrading of the entire industrial cluster system, while geographical concentration increases the intensity of interactions within that system (Baptista, 1996). An industrial cluster of firms drawing on common specialised inputs and infrastructure should upgrade local factor quality and increase its supply. In a similar fashion, geographical concentration should also have positive effects on the composition and size of local demand, and on the existence and development of related and supporting industries, particularly specialised suppliers and users. Geographical concentration is of foremost importance for organisational improvement and technological innovation. Universities and other research centres, customers and suppliers in close proximity are best placed to exchange ideas and co-operate in industry research. As such, Porter's notion of industrial clusters are often characterised as agglomerations of interdependent firms that together are able to achieve wealth-creating synergies throughout their operations.

### ***2.2.3 Porter's ICT: The introduction of 'chance events' and 'government'.***

According to Porter, chance events refer to any occurrences that are outside the control of the firm or government, for example war, embargoes, and technological discontinuities that play a major role in the creation or destruction of industrial clusters within a national context. Chance events can lead to chains of occurrences that trigger the growth of an industry cluster, for example, the partial destruction of Tasmania's Tasman Bridge in 1975 resulted in the rapid growth of a marine

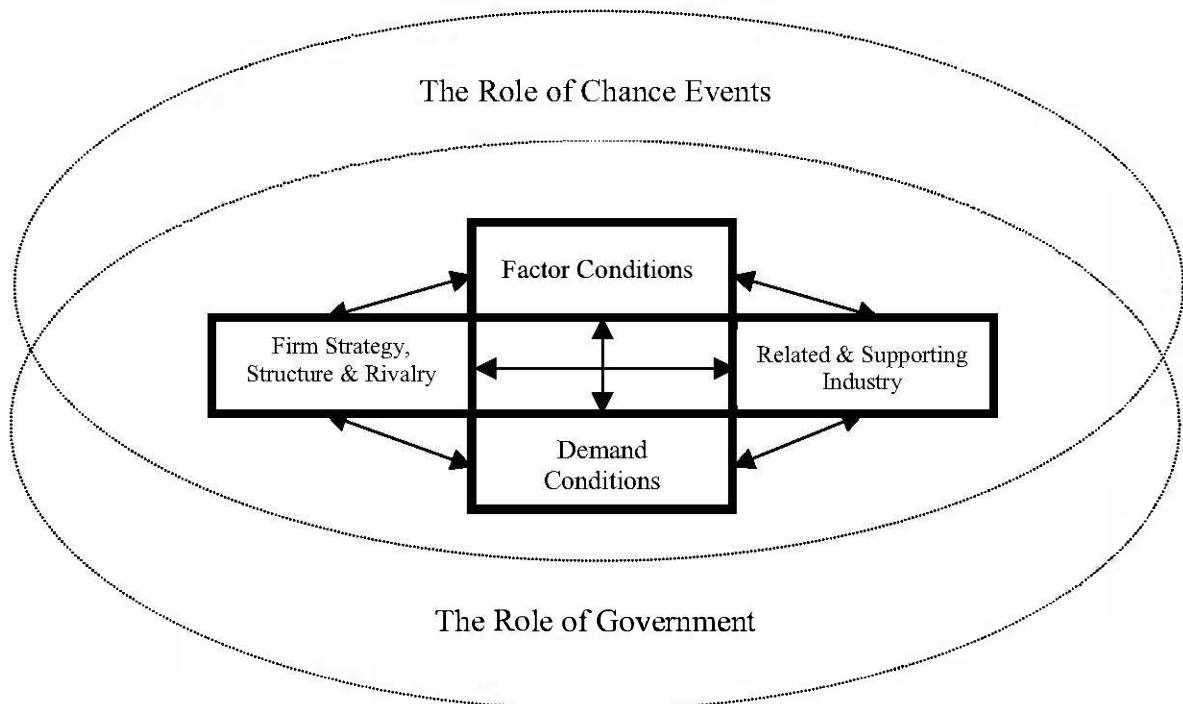


transportation industry. Alternatively, chance events in the form of technological discontinuities may cause the destruction of industries that remain dependent on ‘obsolete technologies’.

Porter argues that the role of government is of equal importance as ‘chance events’ in the development and maintenance of an economy’s industrial clusters. Porter contends that the government’s actions and policy directions have a direct and/or indirect influence on the development of Porter’s Diamond factors that are considered central to the industrial cluster development process. According to Porter, governments are able, and therefore required, to undertake steps to create the economic conditions required that accommodate the development of their economy’s potential industrial clusters.

Porter further notes, however, that government policy formation may indeed be entirely inappropriate, particularly if it provides only subsidies or other protectionist policies to industry cluster entities. Porter states that such government policy will (most likely) result in the establishment of inefficiencies within an industry, which will ultimately cause its competitive decline (Porter, 1990). Although the government’s role in policy development may be pivotal to the success of establishing and nurturing industrial clusters, its actions may also negatively affect an industrial cluster’s growth and long-term ability to generate wealth (Porter, 1990). Figure 2.1 (over page) depicts Porter’s Diamond Factor Model.

**Figure 2.1: Porter's (1990) original Diamond Factor model.**



Adapted from Porter's (1990) *The Competitive Advantage of Nations*.

In order to explain how nations have managed to develop their existing set of industrial clusters, Porter includes the notions of 'historical dependence', and 'stage of national competitive development' into the theory. Historical dependencies refer to those events or patterns of activity that recur in a given region due to their relative importance to the local population. These help the local population to develop a particular expertise, i.e. in terms of Porter's ICT, a comparatively advanced level of specialised human capital within their community. Porter cites Italy's world leading ski boot industry as an exemplar, an industry that grew out of the nation's historical requirement for the high quality climbing and hiking shoes needed to traverse the mountainous northeastern region of the country. Porter (1990) indicates that, due to the importance of historical dependence in the social capital development of a region, an effective role for government would be to concentrate its policy initiatives on those industries in which the region has some significant historical dependence.

Porter's notion of a 'stage of national competitive development' consists of four discrete phases that influence the generic role that government has to play in the development of industrial clusters. The four phases are referred to as the factor-driven development phase, the investment-driven development phase, the innovation-driven development phase, and the wealth-driven development phase. At the factor-driven phase of development, nations draw their competitive advantage almost entirely from basic factors of production such as agriculture or minerals. There are few technological innovations created locally. Domestic firms predominantly use imported technology (usually through licensing and/or joint ventures), and there is some presence of foreign direct investment. Most developing countries are operating within this stage, as are the centrally planned economies. Interestingly, Australia (and therefore Tasmania) has also been classified as being at the factor-driven stage of economic development (Chen, 1995).

At the investment-driven phase of development, industries are already in a position to compete on world markets in standardised products. They are able to apply acquired foreign technology and improve on it. Domestic innovation however, is limited to process and product adaptation. Due to the development of social and physical infrastructure advanced factors begin to play an increasingly important role, while basic factor conditions are still a source of competitive advantage. Thus, labour costs remain low despite an increasingly skilled workforce and production remains concentrated in relatively labour-intensive industries that do not require a full 'diamond' to be competitive. Demand conditions are unsophisticated but developing, and tend to be geared towards quantity rather than quality. There is intense domestic rivalry, although related and supporting industries are still in the development stage.

There is a strong government influence to encourage investments and exports acquisition of foreign technology, selective protection and upgrading of factor conditions. Foreign direct investment by countries at a higher stage of development is prevalent during this phase.

At the innovation-driven phase of development, the economy not only appropriates and improves technology from foreign locations, but also manages to create its own (Porter, 1990). Firms in these economies compete not on factor cost advantages, but rather on productivity and innovation. Governments during this phase are responsible for providing regulatory framework as well as encouraging the creation of more advanced factors of production. A vertical development (or ‘deepening’) of industrial clusters occurs at this stage of development (Porter, 1990). For example, a nation with a competitive advantage in video equipment manufacture may develop a similar competitive advantage in related industries such as videotape and audio equipment. This vertical industrial cluster development is often indicative of a nation having achieved moderate level of innovative capacity. A horizontal (or ‘widening’) of industrial clusters also occurs, as new ‘related and supporting’ clusters are created.

At the wealth-driven phase of development, clustered firms begin to lose the economies of scope advantages as inter-industry rivalry reduces and large firms begin to influence government policy (Porter, 1990). Once the advantages of the industrial clustering process are diminished (particularly in high productivity industries) a de-clustering process results. During this stage, firms begin to compete on price, and combined with falling rates of productivity leads directly to falling wages, rising unemployment and a decline in demand conditions. Only those industries associated

with high-income consumption, as well as those that derive their competitive advantage from the natural advantages inherent to the region remain internationally competitive (Porter, 1990). According to Chen (1995), Australia's economy is characterised by activity closely associated with the factor-driven stage of development. Under the tenets of Porter's ICT, it is at this stage that the government's role is required to be at its most direct in influencing the Diamond factors such that they support the development of the nations internationally competitive industrial clusters.

### **2.3 THE THEORETICAL DEVELOPMENT OF PORTER'S ICT.**

Driven by the propensity of national and regional governments to adopt Porter's ICT as part of their economic policy reforms, numerous researchers have undertaken empirical investigations into the theory to better define the nature and benefits of industrial clustering (see Audretsch, 1998; Lyons, 1995; Markusen, 1996; Yla-Anttila, 1994). A review of the literature indicates that researchers have attempted to develop Porter's ICT in four main areas in order to make it more amenable for use as a policy making framework. The four areas, each discussed in the next section, refer to the practical implications of using Porter's ICT as a policy framework for regional economic development; the reasons why government implementation of Porter's ICT as a policy framework have tended to fail; the need for government to identify the discrete industrial cluster typologies that exist in their economy; and the need for policy makers to understand the policy implications associated with the life cycle requirements of an economy's set of industrial clusters.

### ***2.3.1 The theoretical development of Porter's ICT: The role of regional government in economic policy development.***

As noted, conventional wisdom predicted that the globalisation phenomenon would lead to the demise of the economic region as a meaningful unit of economic analysis (Merriden, 1998; Raco, 1999). Yet the observations of Porter, and the obsession of policy-makers around the globe to create the next Silicon Valley, revealed the increased importance of geographic proximity and regional agglomerations to economic policy development (Audretsch, 1998; Digiovanna, 1996). There is now a considerable body of work arguing for the development of industrial clusters, given their link to the process of innovation and economic dynamism (Boddy, 2000; Dicken, 2001; Gordon & McCann, 2000; Hodgetts, 1993; Maillat, 1998; Yla-Anttila, 1994). For example, at the national level, major economic-policy reviews employing the industrial cluster framework have been undertaken by governments in leading advanced economies including Germany, and the U.S., in small advanced economies such as Switzerland and Denmark, in economies in transition such as Bulgaria, and South Africa; and in various developing economies such as Portugal, Morocco, and Venezuela. Furthermore, a number of regional bodies (for example, in Arizona, California, Quebec, Scotland, etc.) and public authorities in U.S. cities have embraced the approach as a new way to think about the economic activity within their jurisdiction and how to organise related economic-development efforts.

In addition, Enright (1999, in Raff & Lamoreux, 1999) noted the growing interest of multi-lateral organisations, such as the World Bank, UNIDO, the OECD, and the European Union, which now use the approach as a framework for regional and local economic development. Increasingly, this framework has been drawn upon in a

policy-creation context, with the aim of emulating high-growth and innovative localities (known in Australia as 'Technological Precincts'). Authors such as Davies (2001), Enright and Roberts (2001), Peters and Hood (2001), and Porter (1998a) have each noted and detailed the growing interest of policymakers in the industrial cluster approach to regional economic development.

Part of the intellectual appeal to this large and diverse group of policy interests lies in the global paradox which Porter's ICT seems to resolve, namely, why localised advantages will continue to matter in a globalising world economy. Digiovanna (1996), for example, suggests that regional governments have had to undertake some tough policy choices, given the unstable nature of the modern global economy. On the one hand, increasing international competition is subjecting regional economies to more and more of the 'harsh realities' of global capitalism. On the other hand, the reality of growing national budgets and trade deficits, and increasingly unregulated multinational corporations, means that national governments, the traditional agents in encouraging and directing regional development, increasingly lack both the resources and ability to protect or nurture their regional economies. In addition, the abandonment of some regions by national governments' policy direction has required regional governments to act internationally and choose from among alternative development strategies with greater freedom and independence. In this way, many regional governments have started to view themselves as somewhat autonomous of the nation in which they are located (Enright 1999, in Raff & Lamoreux, 1999).

Davies (2001) attempts to link industrial clustering and economic policy development by advancing the notion of collective efficiency, defined as the competitive advantage derived from the external economies arising from joint firm action. Collective efficiency enables small-scale industry to grow through innovation, specialisation and differentiation. The literature on innovation suggests that informal, unplanned, face-to-face, oral communication is critical to the innovation process (see Fidler & Johnson, 1984; Marceau & Basri, 2001; Saxberg, 2003). It is this type of communication in which geographic concentration provides a distinct advantage, even in the age of rapid communication and advanced information systems. The geographic concentrations of firms, suppliers, and buyers found in many industrial clusters provide short feedback loops for ideas and innovations (Enright & Roberts, 2001).

Recent work has highlighted the importance of regional industrial clustering to the economic development process (Bradshaw, King & Wahlstrom, 1999; Coe, 2001; Enright & Roberts, 2001; Porter, 2001a, 2001b). Historical investigation suggests that economies tend to develop through the emergence of regional industrial clusters. In many economies, an industry emerges, perhaps around some particular natural resource, market need, or local skill (Coe, 2001; Enright & Roberts, 2001). As the industry develops, new firms in the industry are founded and eventually suppliers emerge to provide inputs and services. New industries and skill bases are formed through information spill overs and the transfer of knowledge between industrial cluster participants. 'Downstream' industries also develop that take advantage of supplies, inputs, and infrastructure. This is not to say that the regional industrial clustering phenomenon is present in all industries or even most industries, but that it



is an important part of the modern western economic landscape (Enright & Roberts, 2001). As the comparative advantage enjoyed by western economies has become increasingly based on the management of knowledge and innovation, public policy towards business has responded in two fundamental ways.

The first has been a shift away from a 'traditional triad' of policy instruments that essentially constrained the freedom of firms to contract, namely the use of government regulation, the enforcement of competition policy, and the public ownership of business. This shift away from traditional policy was reflected by the onrush of deregulation and privatisation, along with the decreased emphasis of competition policy throughout the OECD nations during the 1990s. In its place, a new policy approach emerged that focused on enabling the creation and commercialisation of knowledge (Audretsch, 1998). The second fundamental shift involves the locus of these policies, which have increasingly been implemented at the state and regional level. During the 1990s, there has been the emergence of a broad spectrum of enabling policy initiatives that have fallen outside the traditional governmental regulatory agencies. Sternberg (1996) documents how the success of a number of different high-technology industrial clusters has been the direct result of enabling policies, such as the provision of venture capital and research support grants (for examples, see Feller, 1997; Sternberg, 1996). In Australia, the introduction of Porter's ICT was met with almost immediate acceptance by state governments as a framework for their regional economic policy development (Australian Manufacturing Council, 1994; Bureau of Industry Economics, 1991). As discussed in the following section, Australia's experience at implementing Porter's ICT as a policy

framework for industrial cluster development has resulted in well below average performance relative to other OECD efforts.

### ***2.3.2 The theoretical development of Porter's ICT: Industrial cluster development and government policy failure in Australia.***

The history of regional economic development in Australia is characterised by the use of fads (Doeringer & Terkla, 1996, in Staber, Schaefer & Sharma, 1996). In the 1960s, mature 'smokestack' industries were the focus of industrial recruitment and retention policies. In the 1970s, the attention of policymakers turned to high-technology industries, and the 1980s saw the attraction of foreign direct investment become popular. Given that the economic advantages of industrial cluster development were well established in the literature, it is not surprising that Porter's model was widely accepted by policymakers around the globe in efforts to improve both mainstream and regional economic performance (Feser & Bergman, 2000). Although examples of successful industrial clusters do exist in Australia, the vast majority have managed to form without the need for prior and formal governmental planning (Digiovanna, 1996). However, many examples of economic policy failure exist, whereby government efforts to create an ideal economic climate for industrial clustering have either failed outright, or have performed far below expectations (Doeringer & Terkla, 1996, in Staber, Schaefer & Sharma, 1996).

Within the literature, the observed barriers to effective governmental implementation of Porter's ICT as an industrial cluster policy framework have been attributed to four main causes. The first has been that much of the policy development to date has largely been focused on information gathering rather than on achieving either

business participation or greater understanding of the industrial clustering process (Davies, 2001). The second suggests that much of the policy development to date has largely been based on case study data pertaining to particular regions or sub-regions that are considered 'industrial cluster successes' (Boddy, 2000). The third cause suggests that although governments may have the ability to effectively identify working and potential industrial clusters, there is an assumption by policymakers that the mere provision of scarce resources will, in of itself, ensure an industrial cluster's economic success. The fourth cause relates to the simultaneous (and potentially incongruent) governmental adoption of macro-economic rationalist policies.

The first major cause cited for government policy failure surrounds the observation that government policy development has largely been focused on descriptive information gathering rather than on achieving either business participation or greater understanding of the industrial clustering process (Davies, 2001). In many of the failed industrial cluster developments, researchers have noted that government policy appears to have been based upon a clear lack of understanding of local and interregional industrial linkages, and the channels of technology and knowledge transfer, which meant that relatively simple measures (such as location quotients and industry size) have often been used by government to detect industrial clusters in sub-national regions (Gordon & McCann, 2000). Feser and Bergman (2000) similarly indicate that a growing number of cities, states and regions in Europe, North America and Asia have designed their development strategies around strategic clusters of industries, although the logic behind many of the failed initiatives is often poorly specified or simply not recognised as relevant.

In particular, there has been a tendency to use terms such as ‘agglomeration’, ‘clusters’, ‘new industrial areas’, ‘embeddedness’, ‘milieu’ and ‘complex’ interchangeably, with little concern for questions of operationalisation, which are actually far from straightforward and need to be considered differently for each (Staber, Schaefer & Sharma, 1996). If the causality of an industrial cluster’s growth producing factors is assumed by government rather than proven, such misconceptions are likely to lead to an ineffective policy development (Qaakey, Kipling & Wildgust, 2001). Part of the difficulty stems from the different theoretical contexts out of which these ideas have emerged; even two commonly linked concepts as ‘industrial clustering’ and ‘increasing returns to scale’ within the spatial economy are not necessarily synonymous, and distinguishing between situations where this is the case and where it is not, becomes a major analytical challenge (Gordon & McCann, 2000).

The second major cause cited is that much of the governmental policy development to date has largely been based on case study data pertaining to particular regions or sub-regions that are considered international successes (Boddy, 2000). Of particular concern has been the reliance of government policymakers on a limited set of particularly successful technological clusters such as Silicon Valley, Hong Kong’s financial district, Boston’s Route 128, and Cambridge in the UK. Boddy (2000) suggests that there are clear dangers in attempting to reproduce significant policy direction from a relatively small number of specific cases, especially those whose economic success is atypical. One of the major dangers is that of misunderstanding the specific origins and role of an industrial cluster (Boddy, 2000). Without the specific insight as to how the relationships and networks between clustered firms is created and maintained, government policy directed at merely ‘locating firms

together' appears to omit and/or ignore the most important and dynamic aspects of the industrial clustering process.

The third cause discussed concerns the government's allocation of its scarce resources as a potential ineffective policy approach to industry cluster formation. Feser and Bergman (2000) note that, at least at the local level, the approach frequently adopted by policymakers involves little more than the identification of current regional specialisations as targets for traditional development initiatives. In such cases, a cluster strategy serves more often as a means of allocating scarce resources than as a way to build the linkages and future inter-industry synergies documented so frequently in successful industrial districts (Feser & Bergman, 2000). For example, in Europe, the US and Asia, many 'planned' clusters have failed to materialise despite heavy investments by government into setting up the infrastructure required to support the clusters. The implication is that although setting up the infrastructure may be paramount to the diffusion of industrial clusters, it is not sufficient in of itself to ensure a cluster's formation.

The fourth cause has been the inadequacy of conventional approaches to governmental industrial cluster policy development in the face of the macroeconomic rationalism of the 1990s. Important though this effort is, the policy context has not always encouraged the analytical clarity which is required both for empirical testing of the theorised industrial cluster propositions, and for assessing the broad scale of benefits which the various kinds of policy initiative might be expected to yield in different contexts (Digiovanna, 1996). In addition, the nature of political will towards industrial cluster policy has also proven to be both highly changeable and problematic

in the 1990s. Given the relatively short terms of government, and the rather longer time-frame required for industrial clusters to become established in an economy, short-term political problems and policy shifts can have detrimental affects on planned industrial cluster initiatives. Political problems that affect policy direction can arise due to any number of factors, including economic downturns, imminent elections, humanitarian crises, and political scandal. In Australia, for example, the economic recession of 1989-1993 resulted in a federal government policy shift away from funding state-based industrial cluster projects, which resulted directly in the major alteration, and even abandonment of, many state-based industrial cluster policy initiatives in the late 1990s (see Boddy, 2000).

Due to the absence of agreed-upon criteria, and the significant numbers of observed policy failures, it has been argued that Porter's ICT is a 'backward looking model', and as such has lost some of its value as a category of policy analysis (Ellis & Pecotich, 2002; Rajneesh, 1993). Indeed, much of the literature on how governments have constructed (or should construct) their industry clusters fails to demonstrate their understanding of how to implement effective Diamond Factor development policies. Instead, industrial cluster policies appear to emerge from judgements based on broad industry growth forecasts, untested predictions regarding the business potential of particular technologies, and examples of particular industrial cluster configurations that have been successful elsewhere (Doeringer & Terkla, 1996, in Staber, Schaefer & Sharma, 1996; Rugman, 1991; Yetton et al, 1992).

In order to form a clear understanding of the role of government in IC development, policymakers are required to undertake finer-grained assessments of the market failures that constrain industrial cluster operation and development. However, literature to date suggests this rarely happens for two distinct reasons. The first concerns the differing policy requirements of distinct industrial cluster typologies that may co-exist within a particular regional economy. Porter's ICT does not indicate a need for government to differentiate between the needs of differing industrial cluster typologies. The second concerns the moderating variable of the industrial life cycle, and the changeable need requirements of the particular industrial cluster at their particular stage within it. This includes the manner in which an IC's changing importance to a regional economy impacts on the interaction between the government's policy makers and the IC over time. These concerns are discussed in the following sections.

### ***2.3.3 The theoretical development of Porter's ICT: Industrial cluster typologies.***

Given that much of the empirical research into industrial cluster development has taken the form of case study analysis, research efforts have resulted in the identification of different industrial cluster typologies (Gordon & McCann, 2000). A large body of research exists that identifies a myriad of social and environmental factors that has led to the formation of industrial clusters, as well as providing reasons why discrete industrial cluster types derive their own distinct set of agglomeration advantages, and therefore, government policy requirements (Staber, 1996, in Staber, Schaefer & Sharma, 1996).

In their overview, Gordon and McCann (2000) identified two main industrial cluster typologies: the model of 'pure agglomeration', and the model of the 'industrial complex'. The model of 'pure agglomeration' presumes that there is no form of co-operation between actors, beyond what is in their individual interests in a competitive environment. Profitable local interaction is made possible through a combination of chance, the law of large numbers (increasing the probability of suitable partners being available) and the natural selection of businesses benefiting from the opportunities on offer. Since not all firms will benefit from every type of externality, there will be a variety of distribution and displacement effects between groups of agents with different characteristics. The system is without any particular observable organisation or inter-agent loyalty, and simply functions as ecology of activities benefiting from proximity, and developing emergent forms of specialisation, possibly including distinct forms of economic culture (Gordon & McCann, 2000).

The second model of geographical clustering proposed by Gordon and McCann (2000) suggests that industrial complexes are characterised by sets of identifiable and stable relations amongst firms, which are in part manifested in their behaviour. The relations are conceived primarily in terms of trading links, and it is these patterns of sales and purchases, which are seen as principally governing their locational behaviour. The earliest insights into the relationship between production and the spatial organisation of industry discussed the question of the relationship between the optimal location of the firm, the level of transport costs and the price of local production factors. The focus of the analysis here is on how the location of the firm is related to the spatial transaction costs faced by the firm, which are perceived to be clearly identifiable. In the early 20th-century literature, these spatial transactions costs



were assumed to be solely transport costs, although it is quite possible to adapt these approaches to include also telecommunications costs and a broader definition of shipment costs such as logistics-costs (Gordon & McCann, 2000).

Coe (2001) summarises the notion of multiple 'cluster typologies' in his study into the Canadian film industry, where he identified three distinct industrial cluster configurations that existed in the economic geography literature. The three identified in his work include the 'satellite' cluster, the 'state anchored' cluster, and the 'hub and spoke' cluster. The 'satellite' typology is essentially an industrial cluster of branch plants of externally owned multi-plant corporations. In this case, key investment decisions are made externally to the industrial cluster, there is an absence of long-term commitments to local suppliers, and the key labour markets are largely external to the districts. Satellite platforms are characterised by the dominance of externally owned firms and are usually staffed by a management-labour market external to the district, but internal to vertically integrated firms. As such, workers in this industrial cluster configuration are committed to the firm rather than the vitality of the other cluster firms.

The second typology is the state-anchored district, whereby key public entities (e.g. universities, research laboratories or defence establishments) are the key anchor tenants that support the private industry members. This is a more eclectic category and the development path of the district depends to a large extent on the exact type of public investment and capabilities management of these key institutions. The third typology, the 'hub and spoke' cluster, denotes a situation whereby the regional industrial structure is heavily influenced by the actions of a single local firm within an

industry. Thus in contrast to the Marshall's classical industrial district, the 'hub and spoke' industrial cluster is characterised by a singular dominant firm surrounded by a local web of smaller and less powerful suppliers that may, in time, develop strong extra-local connections and custom beyond that of the dominant firm. The implication for this research project is that the research method needs to identify the TLSI cluster's specific typology, and therefore, qualify the government activities that facilitated the development of that typology over time.

#### ***2.3.4 The theoretical development of Porter's ICT: Regional economic development and the industrial life cycle.***

The rapid uptake of Porter's ICT for the purpose of regional economic development has been all the more impressive given the absence of empirical evidence that industrial cluster policy initiatives are actually effective. One of the most prevalent concerns in the literature regards the nature of the policy requirements of industrial clusters at different stages in an industry's life cycle. Peters and Hood (2000), for example, discuss the notion of industrial life cycle influences and stage of development as important moderators in industrial cluster policy effectiveness. A growing literature base suggests that 'who innovates' and 'how much' innovative activity is undertaken by an industry cluster is closely linked to the phase of the industry life cycle, and is of vital importance to effective policy implementation (Klepper, 1996). For example, policies that facilitate the innovative process will likely be different in the 'formation stage' of the life cycle than it would in the growth, maturity, or decline stages (Walcott, 1999).

Audretsch and Feldman (1996) similarly classified 210 industries into the four different stages of the industrial life cycle in order to categorise firm behaviour during the stages of the industry cluster's life cycle. Their results provide considerable evidence suggesting that the propensity for clustered firms to undertake innovative activity is strongly influenced by the stage of the cycle. On the one hand, new economic knowledge embodied in skilled workers tends to raise the propensity for innovative activity to cluster throughout all phases of the industry life cycle. On the other hand, certain other sources of new economic knowledge, such as university research, tend to elevate the propensity for innovative activity to cluster during the introduction stage of the life cycle, but not during the growth stage, and then again during the stage of decline (Audretsch, 1998).

In addition, Audretsch and Feldman (1996) argue that a key aspect to an industrial cluster's evolution over the industrial life cycle is where the innovative activity takes place. The theory of knowledge spillovers, derived from the knowledge production function, suggests that the propensity for innovative activity to cluster spatially will be the greatest in industries where tacit knowledge plays an important role. As suggested by Audretsch and Feldman (1996), it is tacit knowledge, as opposed to information, which can only be transmitted informally, and typically demands direct and repeated contact. The role of tacit knowledge in generating innovative activity is presumably the greatest during the early stages of the industry life cycle, before product standards have been established and a dominant design has emerged. Similarly, Enright (1999, in Hood, Young & Young, 1999) suggests that more focused cluster-promotion policies could be achieved if policymakers were to classify

industrial clusters according to their 'state of development', and therefore, their 'state of need'.

Evidence exists to suggest that innovative activity is promoted by instances of knowledge spillovers that occur within a distinct geographic region, particularly in the formation stages of the industry's life cycle. However, as the industry cluster evolves towards the maturity and decline stages of the life cycle, innovative activity may be diluted by the introduction of additional centres of production that build up within the region. The evidence suggests that what may serve as an agglomerating influence in triggering innovative activity to cluster spatially during the introduction and growth stages of the industry life cycle, may later result in a congestion effect, leading to greater dispersion in innovative activity. While the literature on economic geography has traditionally focused on factors such as rents, commuting time and pollution as constituting congestion, and dissipating agglomeration economies; this type of congestion also refers to lock-in with respect to new ideas.

While there may have been agglomeration economies in automobiles in Detroit in the 1970s and computers in the Northeast Corridor in the 1980s, a type of intellectual lock-in made it difficult for Detroit to shift out of large-car production and for IBM to shift out of mainframe computers and into mini-computers. It has been argued that this 'intellectual congestion' led to the emergence of the personal computer in the distant West Coast region of Silicon Valley (Pullin, 2002). Thus, there is at least some evidence suggesting that spatial agglomerations, just like other organisational units of economic activity, are vulnerable to technological lock-in, with the result

being, in certain circumstances, that different life cycle stages require different governmental policy directions (Audretsch, 1998).

With regard to the government's role in ICT, it was noted that each of the industrial cluster typologies identified have differing needs and functions throughout their industrial life cycle. This may suggest that the industrial cluster notion utilised by government in their economic development planning may not be as generic as its policymakers may have assumed. Strong recent interest in the phenomenon of industrial clustering has led to a certain level of confusion in the literature, as researchers adopt the various concepts interchangeably and tend to apply them generically in differing economic contexts. Such analyses are accumulating in many journals and for many regions, but their findings are typically so uniquely derived and depicted that little can be generalised about the structure of key industrial clusters (Feser & Bergman, 2000). It is therefore necessary for this research to highlight the longitudinal variation in government policy generation, and link them to the developmental needs of the TLSI cluster over the stages of the 'new industry's' life cycle.

## **2.4 SPECIFIC RESEARCH QUESTIONS.**

The literature surrounding Porter's ICT has tended to affirm the importance of the diamond factors, and the roles that chance events and government have to play in industrial cluster development. As noted in the review of the literature surrounding the use of Porter's ICT in economic policy development, the roles of chance and government are treated as exogenous factors somewhat incidental to the operation of Porter's diamond factors (Ellis & Pecotich, 2002). Given the documented difficulty

of Australian government policy makers to implement Porter's ICT as an effective policy framework, a need exists to develop the concept of government within Porter's ICT, and the role that it has to play in the development of different industrial cluster typologies over their life cycle. Related issues that also require clarification are the manner in which the role of government is affected by the change in the industrial clusters relative economic importance over time, and how the concept of chance events may be best incorporated into a government's policy development process. Given the numerous variables that affect Porter's ICT, the lack of descriptive theory concerning the role of government in facilitating the development of industrial clusters, and given the broad research opportunity identified in Chapter One, the specific research questions are as follows:

**Research Question 1:** *What role ~~did~~ the Tasmanian Government play in the development of the TLSI cluster since its inception in 1977?*

**Research Question 2:** *How ~~did~~ the change in the importance of the TLSI cluster to the Tasmanian economy over time impact upon the Tasmanian government's policy development process?*

The first research question seeks to distil the government policy initiatives that positively affected the development of the TLSI cluster over its life cycle. In order to achieve this aim, answers to the first research question will link the Tasmanian state government's policy initiatives with the perceived developmental requirements of the TLSI cluster as they presented themselves over time. Answers to the first research question will also include discussion of the other exogenous variable of 'chance events', and the manner in which they may be incorporated in to a government's role as a facilitator of industrial cluster development. The role of chance events requires inclusion in this analysis, as their impact may be more or less significant given the

context within which they occur. As such, the role that government has to play in the development of a regional economy's industrial clusters may be augmented by an enhanced understanding of the relationship between chance events and the regional economy's development over time. The second research question seeks to determine the manner in which the changing importance of the TLSI cluster to the regional economy affects the government's policy development process. In particular, this research question seeks to reconcile the state government's TLSI policy development process in terms of its responsibility to the wider regional economy.

## **2.5 CHAPTER SUMMARY.**

This chapter began with an introduction to Marshall, Weber, and Shumpeter's classical industrial cluster theories, and provided a brief discussion of their assumptions concerning firm behaviour in an industrial organisation context. The chapter then introduced the observed global paradox, and the manner in which the classical theories were unable to explain the localised behaviour of firms given the advantages of globalised trade. Given the demonstrable weakness of the classical ICTs in explaining firm behaviour in the globalised context, this thesis introduced Porter's (1990) ICT, a theory that sought to resolve the global paradox, and which formed part of his book *The Competitive Advantage of Nations*.

Porter's response to the global paradox, his Diamond Factor model of national competitive advantage, received wide academic acceptance and generated considerable policy and political debate since its publication (Birkinshaw, 2000; Enright, 2000; Feser & Bergman, 2000; Schweke, 1995). The academic acceptance

has generally surrounded the fact that the four diamond factors do indeed explain many observed instances of internationally competitive industrial clusters, and how cluster success in innovation is linked to the creation of a nation's competitive advantage (see Baptista, 1996; Davies, 2001; Fitzgerald & Veliyath, 1999; Harrison, Kelley & Gant, 1996; Holt, 1998).

The industrial cluster framework introduced by Porter in 1990 remains widely embraced by government policymakers around the globe. It has been viewed by many as a useful approach for developing integrated micro-economic policies, which enhance economic development and complement macro-economic policies designed to achieve greater stability in the general economic environment (Peters & Hood, 2000). Research indicates that the inter-firm linkages formed through industrial clustering can lead to the emergence of collective efficiencies, which facilitates the industrialisation of small and medium-sized enterprises and has the potential to contribute significantly to regional economic development (Davies, 2001).

Porter's concept of industrial clustering, however, has attracted much attention and debate in the literature over the past decade, both as descriptive of an increasingly important phenomenon, and as a basis for effective government policy creation in regional economies. Much of the theoretical development of Porter's ICT has suggested that whilst it remains valuable as a backward looking framework for explaining the existence of the world's most powerful industrial clusters, it remains weak in terms of providing a forward looking framework for government policy makers. There is general literary agreement, however, that the government must play an important role in the development of the economic conditions required to facilitate



the growth of an economy's internationally competitive industrial clusters (Davies, 2001; Enright 1996, in Staber, Schaefer & Sharma, 1996; Porter, in Trinca, 2002). What is less clear in the literature, however, is the role government has to play in the development of industrial clusters over their life cycle, particularly in the context of a regional Australian economy (Enright, 1996, in Staber, Schaefer & Sharma, 1996; Porter, In Trinca, 2002). The research questions posed in this chapter seek to elicit this specific information, and the method used to gather the requisite data will be described and discussed in the following chapter.

## **CHAPTER THREE.**

### **RESEARCH DESIGN AND METHODOLOGY.**

#### **3.1 OBJECTIVE OF THE CHAPTER.**

The objective of this chapter is to describe the research methodology adopted in this thesis. Consistent with the aim of the research, this thesis undertakes a longitudinal qualitative approach, which accommodates theory building based upon existing knowledge and postulated relationships, yet remaining sensitive to any patterns or phenomena that may emerge. This chapter explains the rationale and process of a single case study inquiry, and details the methodological principles and procedures that were engaged to investigate the research questions posed at the end of Chapter Two.

#### **3.2 RATIONALE FOR THE RESEARCH DESIGN.**

The broad aim of this thesis is to develop a more detailed understanding of the role of government in a regional Australian economy under Porter's ICT. As well as identifying the various factors that influence an industrial cluster's success over time, the extant literature emphasises the need to understand the important role state governments play in providing the economic climate required to foster industrial cluster development. Given the human and corporate complexities in the above issues, investigation requires a research process that is not only capable of discovering the behaviour of the various parties in the TLSI case, but is also able to penetrate the

rationale behind those behaviours. Accordingly, a qualitative research strategy was adopted, as this method provides a means of assessing otherwise unquantifiable facts about the research subjects, and allows the researcher to appreciate the perceptions and social constructions of others (Berg, 1989).

### **3.3 RESEARCH METHODOLOGY.**

As noted in Chapter One, this research into the role of regional government in Porter's ICT is exploratory in nature, and given the phenomena under investigation, a decision was taken to employ a single case study method for theory building. In particular, Yin suggests that single case study research is a method suitable:

... to test a well-formulated theory... The theory has specified a clear set of propositions as well as the circumstances within which the propositions are believed to be true. To confirm, challenge, or extend the theory, there may exist a single case, meeting all the conditions for testing the theory. The single case can then be used to determine whether a theory's propositions are correct or whether some alternative set of explanations might be more relevant (1994: 38).

Yin (1994) suggests three rationales for conducting single-case designs. The first is when the case represents a 'critical case' in the sense that it develops a well-formulated theory. In the TLSI cluster case, Porter's ICT serves as the well-formulated theory within which the critical role of government is largely undefined. Secondly, Yin (1994) suggests that single case studies are also ideal where the case is 'unique or extreme'. The case of the TLSI cluster is 'unique and extreme' in the sense that it represents one of Australia's most internationally successful industrial clusters in a nation characterised by 'industrial cluster mediocrity' (see OECD, 1998b), many resulting from prevalent government policy failure (see Brown, 2000;

Enright & Roberts, 2001; Porter, 2002 in James, 2002). Thirdly, Yin (1994) suggests that single case studies are ideal where the case is a revelatory one. The TLSI cluster case is a potentially revelatory, in the sense that the role of government in a regional economy could be distilled from an analysis of this particular cluster's evolution over the past 25 years.

In addition, Yin (1994: 13) recommends using the “case study method because you deliberately want to cover contextual conditions – believing that they might be highly pertinent to your phenomenon of study”. This is case with the role of government, where “the boundaries between phenomenon and context are not clearly evident” (Yin, 1994: 13). That the TLSI cluster was a highly successful industrial cluster is clear, but its evolution and the role government played in its facilitation is not. As this study seeks to investigate the role that the Tasmanian government played in the facilitation and development of the TLSI cluster, the single case study is an ideal research method.

### **3.4 THE CASE STUDY AS A RESEARCH METHOD.**

According to Bromley (1990: 302), case study research is defined as a “systematic inquiry into an event or a set of related events which aims to describe and explain the phenomenon of interest”. Hakim notes that case studies:

...take as their subject one or more elected examples of a social entity – such as communities, social groups, organisations, events, life histories, work teams, roles or relationships – that are studied using a variety of data collection techniques....Using a variety of data collection techniques and methods allows a more rounded, holistic study than with any other design (1987: 61).

Similarly, Yin (1994) suggests that case studies are not a specific research technique as such, but rather a way of organising social data to preserve the unitary character of the phenomenon being studied. Being amenable to accumulating data from various sources holistically, case studies have been widely applied to research into government policy creation (for example see Baptista, 1996; Boddy, 2000; Gordon & McCann, 2000; Peters & Hood, 2000; Schweke, 1995; Yla-Anttila, 1994).

### ***3.4.1 The purposes of case study research.***

Hakim (1987) suggests that the case study method is not, in and of itself, a prescribed research technique, but rather an amalgam of approaches that often overlaps with other research designs, offering their combined and complementary strengths. This eclecticism not only provides power and flexibility to the research effort, but as Stake explains, it also allows the study's design to be directed by what it is that can be learned from the case itself:

Case study [research] is not a methodological choice, but a choice of object to be studied. We choose to study the case... as a form of research, case study is defined by interest in individual cases, not by the methods of inquiry used (1995: 236).

Thus, a researcher's purpose in studying a given case determines the methodology to be employed. Yin (1994) suggests three research purposes to which case study research may be applied: descriptive research, exploratory research, and explanatory research. As a method for descriptive research, the purpose of a case study is to produce a register of facts from which the researcher gathers evidence concerning some given phenomenon (Yin, 1994). From this evidence, the researcher may then interpret the evidence for the purposes of theory development (Peshkin, 1993). By studying the subject's perception of their own reality, and reporting on the issues at

play in that reality, a detailed portrait of social phenomena is available (Hakim, 1987). Van Maanen (1988: 1) defines this portrait as “a written representation of culture”, whilst Aamodt (1991) suggests that it represents a ‘thick description’ of social experiences that is vital to a naturalistic inquiry. By identifying and describing social phenomena as they evolve over time, case studies allow the researcher to “retain the holistic and meaningful characteristics of real-life events” (Yin, 1994: 3).

As noted, the exploratory purpose of the case study method is to examine the social reality of the actors’ experiences. As Ball suggests:

The analysis of case study is essentially concerned with interpretation. That is, the translation of raw data into a coherent portrayal of an institution and of institutional processes. The process of interpretation involves the data coming to stand for and represent a field of reality as the basis for a ‘theoretical’ (or some other kind of) account of the setting (in Hammersley, Scarth & Webb, 1985: 50).

Given the interpretive nature of case study research, the researcher is able to advance propositions from the evidence accumulated, and as such, provides an excellent vehicle for the inductive development of new theory (Miles & Huberman, 1994; Peshkin, 1993; Yin, 1994). As a method for explanatory research, case studies enable the researcher to investigate data to determine the nature of the relationships between phenomena present in the case (Hartley, 1994). Given that case study research concentrates on the various issues that precede a known outcome, it also enables the examination of the processes involved in the case (Schendel & Hofer, 1979).

### 3.4.2 *Criticisms of the case study method.*

Although case study research is considered of considerable benefit in advancing social inquiry, the approach has been criticised as an approach to research methodology. The major criticisms surround three points of contention: non-standard case study designs (Hamel, Dufour & Fortin, 1993), measures of reliability (Guba & Lincoln, 1981; Stake, 1995), and verbose reports (Lynn, 1991).

The first major criticism is that the efficacy of case study research is constrained by the absence of a definitive, routinised design through which to conduct social research. The argument that case studies are *ad hoc* research methods that lack rigour, and therefore, inter-research comparability (see Hamel, Dufour & Fortin, 1993) assumes two important criteria. The first is that case studies should be required to follow a certain formula; and second, that researchers need *ex ante* formulations in which to elicit socially constructed information. In response to the first claim, Patton (1987) and Schultz and Kerr (1986) suggest that critics confuse the case studies method (as a design) with the type of data collected in the research itself. Therefore, they advise that the holistic nature of the case study method needs to be distinguished from the specific data gathering techniques used by the researcher.

Concerning the second criticism, the lack of a precise format can be considered a strength of the case study method, as it is this characteristic that provides the researcher with the opportunity to vary the approach according to the purpose of the study itself. As Eisenhardt (1989) states, case study research aids in the development of theories, rather than the testing of rigid hypotheses, and as such provide “an empirical genre appropriately flexible, eclectic, and capable of creating surprises”

(Walker, 1983: 155). Hakim (1987: 63) agrees, stating that having the freedom to choose the method of inquiry is not an impediment, but rather a strength that makes case studies “one of the most powerful research designs”.

The second major criticism of case study research relates to the properties of ‘reliability’ and ‘validity’, which refer to the measures used to judge the quality of data (Guba & Lincoln, 1981; Stake, 1995; Yin, 1994). The two concepts originate from experimental research, where systematic error is controllable by statistical techniques (Weiers, 1988). Reliability refers to how accurately a measure yields the same result on repeated trials (Yin, 1994). Validity refers to the degree to which a study accurately reflects the specific concept that the researcher is attempting to measure (Yin, 1994). Without the agreement of independent observers able to replicate research procedures, or the ability to use research tools and procedures that yield consistent measurements, researchers would be unable to satisfactorily draw conclusions, formulate theories, or make claims about the generalisability of their research (Guba & Lincoln, 1981; Stake, 1995).

In quantitative research analysis, reliability is gauged by the consistency of the research instruments over repeated applications. Although replication of the research instruments is impossible in a single case study because “the operations involved depend upon the particular circumstances and events that occur within the case” (Bresnen, 1988: 47), Marshall and Rossman suggest that researchers should strive for reliability through notes of their work, enabling:

...others to inspect their procedures, protocols and decisions...by keeping all data in well organized, retrievable form, researchers can make them available easily if the findings are challenged, or if another researcher wants to analyze the data (1989: 148).



Validity refers specifically to “the degree to which we observe what we purport to observe (Rosenthal & Rosnow, 1984: 76). Yin (1984) proposes three approaches to assessing the validity of information obtained from case study research: construct validity, internal validity, and external validity.

According to Babbie (2001), construct validity is achieved when the measure of a particular concept correlates with the measures of other relevant concepts in a theoretically expected manner. Yin (1994) offers three tactics to increase the construct validity in case study research. Firstly, Yin (1994) directs that a researcher, where possible, should use multiple sources of evidence so as to achieve a sufficient level of data triangulation. Secondly, the researcher should establish a chain of evidence that links the question asked, the data collected, and the conclusions drawn. Thirdly, the researcher should use the key informants to review the draft report, and provide comment where required to ensure the report’s accuracy in portraying case events.

Internal validity refers to the extent to which the observed effect in a case study is causal in nature (Babbie, 2001). Whereas cause and effect may be noted in quantitative analysis through the establishment of statistical significance, the qualitative realm is not so amenable to such precise linkages (Krawthwohl, 1985). Internal validity in qualitative research, and particularly that undertaken in case studies, however, remains particularly susceptible to contamination by researchers who allow their own perceptions to influence their interpretation of the data (Goode & Hatt, 1952; Krawthwohl, 1985; Neck, Godwin & Spencer, 1996; Yin, 1994). Therefore, researchers undertaking a case study approach need to be vigilant in

seeking deficiencies in their case work by scrutinising the data where doubt may be justified, and using pattern-matching, triangulation and/or explanation-building to strengthen the accuracy of interpretation (Eisenhardt, 1989; Livingston, 1987; Hammersley & Atkinson, 1983; Yin, 1994).

External validity refers to the generalisability of a study's findings to other populations and to other environmental conditions (Yin, 1994). Although critics such as Tellis (1997) have claimed that case study research results lack external validity, Yin (1994) argues that such results may be generalised to a wider population provided that the case study is conducted rigorously. Yin (1994) continues to argue that the case study method is not simply undertaken to seek universally applicable results about populations, but rather to offer plausible and generalised findings to theory development.

The final major criticism of case study research surrounds the notion that they result in desultory, wordy, and rather unfocused reports (Lynn, 1991). Miles and Huberman (1994), Morris, Fitz-Gibbon and Freeman (1987) and Yin (1994) each warn researchers to pay attention to the careful and rigorous process of description required by the case study method. They suggest that case studies should 'create reality' by describing it parsimoniously, thereby making "the implicit explicit, the intuitive self-evident, and the abstract concrete" (Walker, 1983: 163). Therefore, it is the responsibility of the researcher, through the skilled use of written communication, to reconstruct the composite issues inherent in a case study in a clear and concise form to the reader. In terms of this research inquiry, the above criticisms of the case study method (and their responses) required the researcher to incorporate a number of

specific measures to ensure the reliability and validity of the data gathering and analysis process. The following section details the measures undertaken to ensure the reliability and validity of the inquiry.

### **3.5 THE SUITABILITY OF THE CASE STUDY METHOD IN THIS INQUIRY.**

The adoption of case study methodology in this inquiry was governed by two factors: the outcomes of the literature review, and the development of the Tasmanian Light Ship Industry cluster.

#### ***3.5.1 The literature review.***

The literature review indicated that the government in regional economies have an important role in facilitating the growth and international success of industrial clusters in Australia. It also suggested that government policy aimed at developing and facilitating regional industrial clusters requires flexibility over time to be most effective. Perhaps most importantly, this means that government policy needs to be reflective of an industry's growth requirements as they change through its life cycle, yet at the same time not merely amount to *de facto* subsidy or tariff protectionism. As this study requires a research methodology that accounts for both the human and policy interactions between the TLSI cluster firms themselves, and the TLSI and the Tasmanian government, a flexible approach that is receptive to emerging themes, unexpected relationships and new issues is necessary. The case study method enables these qualities to be studied effectively (Eisenhardt, 1989).

Yin's (1994) definition of the single case study method underscores its particular suitability in the investigation of the Tasmanian government's role in the development of the TLSI cluster. It allows the investigation of the phenomena (the Tasmanian government and its economic policy over time) within the real-life context (the development of the internationally competitive TLSI cluster) when the boundaries between the phenomenon and the context are not clear (as evident in the history presented in the case report).

### ***3.5.2 The Tasmanian light ship industry cluster as a unique case study.***

The TLSI cluster is a unique Australian case, in terms of its geographic and economic location, its history, and its international success relative to other industrial clustering efforts in this country. Equally unique is the role that the Tasmanian government had in its development during the period 1977-2002. These factors combined create what Yin (1994: 44) describes as a "rare of unique event" for which the case study methodology is a highly appropriate research design (Yin, 1994: 44). The government's role in the development and facilitation of the TLSI cluster, however, cannot be considered as a single episode capable of being researched in a cross sectional manner. The history of the interaction between the clustered firms themselves, and between the clustered firms and the Tasmanian government, ensure that the interlocking series of events and perspectives can only be meaningfully assessed by a longitudinal inquiry (Fear, 2001). In her paper dealing with regional economic development research methods, McLean notes that due to the inherent complexities involved, longitudinal analysis is a particularly appropriate case study method because:

Through historical analysis, [researchers] gain a systematic method for understanding the changing context of regional institutions, the community, and the region's place in the global and national system. Historical analysis makes planners more aware of the interrelations of technical, social, cultural, and political factors (1996: 196).

As such, the capture of longitudinal data in this case enables the researcher to both track the development of the TLSI cluster over time, and also the manner in which its growing significance to the region's economy impacted on the perceptions and actions of the actors within the case over time. It is important to note, that in this study a longitudinal inquiry does not refer to the collection of data over a period of time, but rather the historical examination of events. Rose (1991) suggests that case study design is ideal for longitudinal research, as it is amenable to both historical and processual aspects of investigation. Rose, highlighting the work of Pettigrew (1973) and Littler (1982) stated that:

...methodological principle underlying [case study] design is the belief that theoretical concerns of a processual form require a longitudinal research design, thereby enabling a social system to be explored as a 'continuing system with a past, a present, and a future' (1991: 454).

An issue with longitudinal research, however, is that the potentially large and diverse number of variables present in the case history necessitate the truncation of the time span covered by the inquiry, and/or the omission of certain important contextual factors (Field & Morse, 1985). However, as the geographical, political, organisational and temporal perimeters of the TLSI cluster and Tasmanian government interactions are self-defined, all of the relevant dimensions may be investigated completely in this case study. This property suits the single case study method, which allows the research entity to be understood in its entirety (Yin, 1994).

### ***3.5.3 The purpose of the research.***

Given the nature of the phenomena under review, the descriptive, explanatory, and exploratory purposes of this research are significantly interrelated. The descriptive purpose is realised by creating 'thick descriptions' of the issues and the complexities of the case. This contextual data serves the exploratory requirements of the thesis, as it informs the process of theory building (Strauss & Corbin, 1990) and contributes to the explanatory purpose by identifying the causal links that may be present (Yin, 1994). Although the exploratory purpose of the research is concerned with the discovery of theory from data, this study does not seek to generate grounded theory in which prior inquiry, or the investigator's perspectives are excluded from the interpretive process. The literature review undertaken in Chapter Two indicated that government policy development has been significantly influenced by the research into the competitive advantage of nations, and as noted earlier, that researchers should not be detached from the subject matter. Through the collection of data from multiple sources, and by utilising an open coding technique (to be discussed later), the case study method may be used to both elucidate issues that have not been identified previously, and to refine existing theoretical concepts (see Yin, 1994).

## **3.6 CONDUCT OF THE RESEARCH.**

The plan of this investigation is based on Yin's (1994) model for case study research. The processual order and content of this inquiry was modified to allow for the study's exploratory emphasis, and to accommodate the single case method. The research sequence is now described.

### ***3.6.1 The selection of the case.***

Two major factors influenced the selection of the Tasmanian government (and its role in the development and facilitation of the TLSI cluster) as the focal case in this thesis. Firstly, the TLSI cluster represents an exceptional exemplar of an internationally competitive industry cluster located in a regional economy. As noted, the TLSI cluster captured 40 percent of the international market for fast ferries, and at one point accounted for the production of 50 percent of all fast ferries in operation around the globe (Industry Audit, 1998). The international success of the industrial cluster, and therefore the Tasmanian government's role in its development over time represents a case worthy of further consideration through case study research. Researching the role that a regional Australian government played in such a profound case is supported by Pettigrew:

...given the limited number of cases which can usually be studied, it makes sense to choose cases such as extreme situations and polar types in which the process of interest is "transparently observable". Thus, the goal of theoretical sampling is to choose cases which are likely to replicate or extend the emergent theory (1988, cited in Eisenhardt, 1989: 537).

Secondly, the role that the Tasmanian government played in the development and facilitation of the TLSI cluster provides a rare opportunity to examine the life of an industry cluster in its entirety. The case itself is ideal for the purposes of determining the Tasmanian government's role, as the entire industry cluster history is documented in numerous reliable secondary data sources – from its inception in 1977 (with the establishment of International Catamarans as the TLSI cluster's 'hub firm') to its current form (an industry cluster in the 'mature' stage of its industry life-cycle, and with numerous 'hub firms'). As this investigation centres on the interrelationship between the Tasmanian government and the TLSI cluster firms over a relatively short

(and discrete period of time), the study provides some redress to the paucity of management research, and Porter's recent suggestion that:

...in Australia, what is less understood is that the government has some positive roles, like innovation and training, infrastructure [provision] and things like that. I think that the real frontier is [understanding] the positive roles to be played by government whilst avoiding the distortion or intervention in competition (2002, cited in Trinca, 2002: 39).

### ***3.6.2 A review of the literature.***

The literature review posed in Chapter Two suggests that there are two major questions to be researched in this research. Firstly, what role did the government play in the development and facilitation of the TLSI cluster over time, specifically in terms of how it supported and advanced Porter's Diamond Factor Model as they pertained to Tasmania's regional shipbuilding industry? Secondly, how did the changing importance of the TLSI cluster to the regional economy affect the government's policy development process? The examination of these topics defined the units of analysis, the research questions, and the appropriate methodology.

### ***3.6.3 The development of the case study protocol.***

The case study protocol documents the procedures to be employed when conducting case research. As well as describing each phase of the inquiry, the case study protocol assists in future considerations of the case by enabling other researchers to fully understand the methodology used. Yin (1994: 63) suggests that a case study protocol is an essential element of the case study method, because it is "a major tactic in increasing the reliability of case study research, and is intended to guide the



investigator in carrying out the case study”. As the case study protocol was an essential tool in identifying the critical elements required in the planning and execution of the thesis, it was devised before the commencement of the research activity. This protocol (detailed in Appendix A) was used to determine the design of the research, and the nature of the data gathering process, and indeed, the basic form of the thesis itself.

#### ***3.6.4 Key informant interview preparation.***

The case study protocol specified the respondents, and the primary and secondary data to be gathered by the research. In order to obtain diverse perspectives, facilitate crosschecking of information, and recognise those issues requiring further consideration, 25 candidates were identified, and approached as informants. Six of these were current heads of Tasmanian government departments (including the TLSI cluster’s training facilities); five were ex-state premiers spanning the TLSI cluster’s history (1977-1998); one was the current state premier (1998 – present); three were senior bureaucrats that had served the state parliament from 1977-1998; one was an incumbent federal Member of the House of Representatives for Tasmania that has served since 1977; and finally, the nine founding managers of the TLSI cluster’s private sector firms (all of whom were still in charge of their organisation in 2002).

In order to control the content and scope of the interviews, an interview guide (see Appendix B) was prepared. This guide was based on the ‘elements for investigation’, the ‘data requirements’, and the ‘critical incidents’ that emerged from the preliminary secondary data gathering process. Of the informants approached, all 25 agreed to participate in the research project and undertake a tape-recorded semi-structured

interview. The interviews themselves were of varying lengths, the shortest 20 minutes duration, the longest 45 minutes duration.

### ***3.6.5 The case study research process.***

The case of the Tasmanian government's interaction with the TLSI cluster was researched over 15 months, and was conducted according to the research design outlined in the case study protocol. This process is detailed below.

#### ***3.6.5.1 Combining the research purpose with the research questions.***

By considering the research question within the descriptive, exploratory and explanatory purposes of the study, a suitable method of data collection and examination was constructed. This provided the investigator with a 'research map', upon which the data were gathered and analysed. For each of the three purposes of this research, the data were managed in the following manner.

Firstly, in preparing the case history, secondary data sources were utilised to map the critical incidents surrounding the development of the Tasmanian shipbuilding industry, and in particular, those that were directly linked with the TLSI cluster and/or the Tasmanian government. This is consistent with the recommendations of Fear, who stated that what is required:

... is a careful, accurate reconstruction through archival research of the firm's objective situation, the key players, their perceptions of the situation, their reasoning in favor of one path or another, and contemporary statements explaining why they considered the chosen path to be the correct one (2001: 174).

The sources of the secondary data included both local and national newspaper archives, the historical publications of the TLSI cluster firms, government agency publications, and the Tasmanian Parliamentary Library. The local and national newspaper archives were useful in identifying the industry's critical incidents and issues in an historically accurate fashion. These critical incidents and issues were then summarised into an historical timeline, so that the appropriate issues (and therefore interview questions) could be directed at the individuals that were specifically involved with them. The critical incidents and issues aided in the construction of the interview questions asked of both the cluster firm managers, and the key informants from the government sector. As such, although the core interview questions remained consistent across all respondents, a number of interview questions were specific to particular government officials (be they an ex-state premier, or bureaucrat) depending upon their time in office.

In preparing the case analysis, the reality of each critical incident and issue was elicited by composing thick descriptions of the informant's views. This was achieved by asking 'what', 'when', 'why', and 'how' questions that preserve the meaningfulness of the phenomenon as a complex real-life process. Exploration of the phenomena was achieved by posing 'what' and 'when' questions (e.g. When, and what did the government do to develop the TLSI cluster over time? What was the TLSI's response to this action?), as they are ideal for the development of hypotheses and tenable propositions (Yin, 1994). Explanation of the phenomena was achieved by posing 'how' and 'why', as they can access the links between certain phenomena within a case specific context (Yin, 1994).

This interrogative process described above was applied to each piece of information as it emerged during the data gathering and analysis stages of the case study research. Some information demanded only a single focus of inquiry, whereas others were multidimensional in nature; where the information was multidimensional (i.e. it displayed both descriptive and explanatory elements, it was analysed accordingly).

#### *3.6.5.2 The unit of analysis.*

Case studies comprise a single unit of analysis based upon depth that is both holistic and exhaustive (Ball, 1996), and which retains the meaningful characteristics of realistic events. Thus, a case study as defined by Yin is an empirical inquiry that “investigates a contemporary phenomenon within its real life context, especially when the boundaries between the phenomenon and context are not clearly evident (1994: 13). Miles and Huberman (1994) pick up Yin’s (1994) second point, seeing boundaries as the critical issue in the struggle to define case studies. They employ a simple definition that “we can define a case as a phenomenon of some sort occurring in the bounded context (Miles & Huberman, 1994: 25).

Miles and Huberman (1994) speak in terms of the focus of the study surrounded by an indeterminate edge of the case marking the boundary of what will not be studies. This problem of case boundary is reflective of the point made by Peshkin (1993) that descriptive analysis is inevitably selective. Within the flexibility of case studies, boundaries of relevance are sometimes elusive and elastic. Exploratory case studies are susceptible to ill-defined boundaries until issues emerge. Simultaneously, case

studies are opportunistic (Peshkin, 1993) and permit the investigation to pursue new directions as the need arises, thus redrawing the boundaries.

Given that the selection of the units of analysis is dependent on the “way the initial research questions have been defined” (Yin, 1994: 22), the primary unit of analysis that emerged from the research question in this thesis is ‘the establishment and growth of the TLSI cluster between 1977 and 2002’. As the research concerns both the actions of the Tasmanian government, and the concomitant reactions and demands of the TLSI cluster over time, each dimension was subsumed as a secondary unit of analysis. Given that the interpretation of the interpretation of the regional government’s action relied upon an understanding of the attitudes, values, and behaviours of the other actors involved, a subordinate level of units of analysis was produced. Yin (1994: 41) terms the use of multiple units of analysis in a single case study as an “embedded case study design”. Yin explains that multilevel units of analysis:

... incorporate subunits of analyses, so that a more complex - or embedded - design is developed. The subunits can often add significant opportunities for extensive analysis, enhancing the insights into the single case (1994: 44).

#### *3.6.5.3 Data collection.*

Documentary material may be classified as either a primary or secondary source. Primary data is that which originates from an investigator’s specific inquiry into a research problem, whereas secondary data is that which is gathered by a researcher, but was originated by another’s inquiry to a different research problem (Malhotra, Hall, Shaw & Crisp, 1996). The distinction is significant, as it defines the proximity

of the document's author to the subject matter. Whereas primary sources record the direct observations of involved parties, secondary sources are the remote observations of third parties. As the distance of secondary sources may decrease validity and reliability, primary sources are preferred (Babbie, 2001). This study incorporates both primary and secondary documentation as appropriate, and as available, with validation mechanisms to control their validity and reliability.

Due to the strengths and weakness inherent to any single research method, Babbie (2001) recommends that multiple methods of inquiry be incorporated into case study research in order to overcome analytical and validity problems associated with singular research methodologies. As suggested by Babbie (2001), Hakim (1987), and Yin (1994), the use of several different sources of data, and indeed the incorporation of different research methods to capture this data (otherwise known as 'triangulation') is a valuable research strategy, and was incorporated into this investigation. Given the recommendation of Marshall & Rossman (1989), the choice of the data collection instruments in this study was dictated by the requirements of the research, and the investigator's access to the necessary information.

The first step in the data collection process involved the retrieval of secondary data descriptive of Tasmania's maritime history since European settlement, and the inception and evolution of the TLSI cluster since 1977. Given that documentary records are a fundamental resource for historical inquiry, the initial draft of the case history was composed from published accounts of the TLSI cluster, ranging from firm-published historical documents to official government reports. By reconstructing the past, the contextual factors of the shipbuilding operation were

assembled and clarified, and the critical incidents and issues identified for further examination. Marshall and Rossman (1989: 95) suggest that researchers commence the data gathering process with secondary historical material, as it is “useful for establishing a baseline or background prior to interviewing”.

As the researcher needed to gather data beyond the facts contained within the written histories (by gaining insight into the informant’s understanding of the incidents and issues), interviews were then organised with each of the key informants identified in the case study protocol. After the collection of the historical data was completed, therefore, a time line of events was constructed, and the interview questions to be posed to the cluster firm managers and key government figures formulated. Hutchison (1986: 115) suggests that the interview process is the most effective method to achieve this, as it “serves to clarify the meanings the participants themselves attribute to a given situation, [enabling] the researcher to understand the problem ‘through the eyes’ of the participant”. These semi-structured interview questionnaires contained both standardised interview questions (i.e. common to all informants) and specific interview questions (i.e. aimed at the key informants’ specific involvement in the TLSI’s history), and were formulated to elicit the primary data required to answer the research questions posed in this inquiry. Both the standardised and specific interview questions were formulated to facilitate the aggregation, analysis, and validation of information, and enabled the researcher to interrogate the evidence gathered from other sources. These questions were designed to cover the necessary issues, but were framed in an open-ended manner, to allow the interviewees sufficient latitude for introspection and open reporting of their own perspectives. As a result, the informants were free to pursue those matters that they

considered important. With the permission of the participants, each interview was recorded onto audiotape.

The collection of primary data using the semi-structured interview method allowed the informants to tell their own story in their own way, thereby allowing the researcher direct access to the experience of the case (Clandinin & Connelly, 1994). These individualised recollections aid to strengthen the inquiry by counteracting the bias that may exist in the secondary documents (Burgess, 1982), by adding matters of fact or detail that may only be recorded in individual memory (Samuel, 1982), and by giving voice to those not usually heard (Fontana & Frey, 1994). The semi-structured interviews assisted this inquiry in each of these areas, as they enabled the researcher to access facets of the case that would not have been available by any other data gathering technique.

### **3.7 THE CASE ANALYSIS.**

The purpose of case study analysis is to summarise observations in such a manner that they yield answers to the research question (Yin, 1994). As suggested by Miles and Huberman (1994), data in this study were analysed in a continuous fashion throughout the data gathering process. By continually analysing the data as it evolved from the documents and interviews, contradictions were isolated, missing data were identified, and alternative explanations sought. The process and sequence of the case analysis appears below.



### ***3.7.1 Editing the data.***

Data should be edited to ensure that they are “accurate, consistent with other information, uniformly entered, complete, and arranged to facilitate coding and tabulation” (Emory & Cooper, 1991: 450). Editing was undertaken in the following manner on all information as it emerged from the documentary records and interviews.

As primary and secondary documentation generally focused on the facts of the case, editing at this stage was primarily concerned with searching for inconsistencies and omissions within and amongst the manuscripts, as well as organising the data in preparation for coding and categorisation. A particular issue was the difficulty in determining the neutrality of the researchers, and as such, all reports and interviews were afforded close attention in the verification process, and instances of explicit bias discarded.

As recommended by Denzin and Lincoln (1994), tapes of the interviews were transcribed immediately after the interviews. The immediacy of the transcription of an interview is important, as it is never an exact copy of the conversation that took place. No matter how thoroughly the transcript is done, the issues inherent to the ‘translation’ process may result in inaccuracies, mistakes and misinterpretations (Denzin & Lincoln, 1994). The immediate transcription of the interview recordings also enables the researcher to account for the content and context of the exchange, and add in additional notes to the data where it is deemed necessary. The interview transcripts serve four major functions. Firstly, they recapture the essence of the exchange, and allow the researcher to reflect on the meaning of what the respondent

had said. Secondly, they force the researcher to reflect on the relationship between what had been recorded, and the aims of the study. Thirdly, they help to determine what material was relevant and therefore worthy of coding. Fourthly, they enable preliminary coding decisions to be made. The completed transcripts were submitted to the informants for verification of accuracy.

The editing process in this research revealed material omissions in a number of the documentary records, however the majority related to unrecorded periods in particular reports. From time to time, accounts displayed a paucity of detail in, and explanation of, the events under review. Inconsistencies within individual interviews were negligible, as was the incidence of one account being substantially inconsistent with another. The majority of these issues were rectified by reference to further documents, with the remainder being clarified during the interviews.

### ***3.7.2 Data categorisation and coding.***

Data categorisation organises the various dimensions of the data by grouping together attributes that relate to the concepts being examined. By devising categories that are mutually exclusive, exhaustive, and based on a single classification (Denzin & Lincoln, 1994), aspects of the data were clustered together to facilitate the interpretive process. The previously noted units of analysis served as categories, and by considering their lateral and vertical relationships, the data were progressively distilled through interpretation and comparison.

Data coding refers to the appointment of titles to salient elements in the data, in order to assign them to an appropriate category (Schwandt, 1997). This exercise simplifies the handling and interpretation of information, by introducing 'rules of order' to the treatment of data (Schwandt, 1997). As recommended by Fleet and Cambourne (1989), data coding definition and labelling must fulfil three major criteria. Firstly, it must be consistent across the entire data bank. Secondly, it must precisely indicate what information is constituted by each code. Thirdly, it must align with the locus of the enquiry. As suggested by Miles and Huberman (1994), data codes were assigned throughout the entire data gathering process. This allowed for the discovery of issues requiring further investigation, the refocussing of the research questions, the generation of additional codes, and the refining of existing codes. The complete coding system is detailed in Appendix C.

Given the qualitative nature of the inquiry, and the fact that statistical analysis fails to address the needs of undertaking analysis at the level of the whole case (see Yin, 1994), only minor emphasis was placed on the enumeration of frequencies. Instead, the data were analysed for aspects of relevance to the research questions. This was achieved by using the principles suggested by Becker and Geer:

- The coding should be inclusive. That is, any incident should be coded under a category, if there is initially any reason to believe that it might be considered relevant. Many incidents will, therefore, be coded under several categories, for there may be relevant to all of them. An incident, which on later analysis proves to be irrelevant, can simply be discarded.
- The coding should be by incidents: either complete verbal expressions or complete acts by an individual or group.
- The coding should be 'full'. That is, the incident being coded should be summarised in all its relevant detail: the idea expressed, the actions taken, the people present, the date, and the setting (1982: 245).

As recommended by Babbie (2001), when coding the data, all elements were inspected for their visible, surface components (i.e. the manifest constituents) and any meanings that might underlie the visible elements (i.e. latent constituents). Collectively, the coded incidents defined the essential situations and factors embedded in the units of observation. By summarising and describing the fundamental characteristics of these units, their bearing on the study was illuminated, and the relationships between them were assessed.

### ***3.7.3 Data interpretation.***

Regardless of the methodological approach adopted in a research project, Bachor (2002) states that the researcher has an obligation to disclose the manner in which the data were interpreted to the reader. The nine tactics for data interpretation, as advanced by Miles and Huberman (1994) were employed in this research (see Table 3.1 over page for a coherent and parsimonious summary of these tactics and their implementation). The information in this table is arranged from the descriptive to the explanatory, and from the 'concrete' to the abstract. As these procedures are not necessarily mutually exclusive, there was some overlap in their application to the data set.

**Table 3.1 Processes for Data Interpretation**

<b>Tactic</b>	<b>Procedure</b>
<b>Noting patterns and themes.</b>	When observing phenomena, gestalt psychology holds that people tend to perceive events in their entirety rather than their constituent parts. Therefore, as data were interrogated, recurring patterns and themes were noted in order to consolidate individual facets of the information.
<b>Seeking plausibility.</b>	Miles and Huberman (1994:246) suggest that when drawing inferences “often happens during analysis that a conclusion is plausible, ‘makes good sense’, ‘fits’ ... so plausibility, and intuition as the underlying basis for it, is [valuable].”
<b>Clustering.</b>	Organising data in to clusters aids in its interpretation by grouping objects that have similar characteristics (Miles & Huberman, 1994). In this research, the clustering of data formed part of the coding process, followed by the grouping of more abstract elements during analysis.
<b>Subsuming particulars into the general.</b>	By making comparisons across the data set, instances of similar phenomena may be categorised together. This approach was integral to the category development in the analytic and theory building processes of this thesis.
<b>Factoring (Factor analysis).</b>	Factor analysis effectively reduces the number of variables by identifying which belong together and which seem to measure the same phenomenon.
<b>Noting relationships between variables.</b>	Determining the nature of the relationship between variables involves examining data to ascertain whether certain variables change directly, change inversely, or indicate no relationship at all.
<b>Finding intervening variables.</b>	An intervening variable is one that theoretically affects the observed phenomenon but cannot be observed. When variables in this inquiry seemed to be related but provided an unsatisfactory explanation, the data was searched for possible intervening variables.
<b>Building a logical chain of evidence.</b>	This involves the development of a related sequence of factors so that prior elements of events are related logically to subsequent elements.
<b>Making conceptual or theoretical coherence.</b>	Having gleaned evidence from the data that appeared to form converging patterns and identify relationships, theory was inducted from that evidence.

This table is adapted from the recommendations in Miles and Huberman (1994).

#### **3.7.4 Verification of Conclusions.**

The process of verifying the conclusions of this study emanated from the previously noted concerns regarding the notions of reliability and validity. While Altheide and Johnson (1994) argue that methods for establishing confidence in qualitative research are poorly defined, Miles and Huberman (1994) submit a number of tactics for

verifying the outcomes of qualitative research. Again for the purposes of coherence and parsimony, those employed in this research are outlined below in Table 3.2.

**Table 3.2 Processes for Verifying Conclusions**

<b>Tactic</b>	<b>Procedure</b>
<b>Checking for representativeness.</b>	During the interpretive process, data from non-representative sources was scrutinised, non-representative events were eliminated from the analysis, and no conclusions were drawn from this data.
<b>Checking for researcher effects.</b>	A major concern in qualitative data analysis concerns the potential contamination of data caused by the researcher during their inquiry. Potential sources of contamination in this study were: (a) holistic fallacy, whereby extreme evidence is ignored so data are interpreted as being more patterned or having greater congruence than they actually did; (b) 'going native', whereby researcher-informant relationships preclude the pursuit of further investigation lest it damages the rapport between the parties; and (c) over-reliance on particular well informed respondents. These influences were minimised by considering the material presented by a wide range of data sources.
<b>Triangulation.</b>	Triangulation refers to the use of a combination of methodologies in the study of a singular phenomenon, and may be applied to both data and theories. Data triangulation was achieved by gathering material from a wide variety of sources.
<b>Weighting the evidence.</b>	To account for the fact that some data were weaker or more suspect than others, the inquiry followed Miles and Huberman's (1994) suggestion that differential weightings be applied to the data according to (a) informant characteristics, and (b) circumstances under which data were gathered.
<b>Ruling out spurious relationships.</b>	Explanatory conclusions depend on inferences drawn that suggest that one factor is related to the other. Kidder and Judd (1986) recommend that researchers inspect each apparent relationship in order to ascertain that other causal processes have not produced the inferred relationship.
<b>Checking out rival explanations.</b>	Miles and Huberman (1994) suggest that explanations should not be accepted until all possibilities had been explored. On finding alternative explanations, resolution between competing analyses was reached by retaining all probable explanations until one became more compelling as the result of stronger evidence or the weight of various sources of evidence.
<b>Looking for negative evidence.</b>	Yin (1994) notes that conclusions should be interrogated for evidence that might disprove an established result, thus this inquiry remained open to contrary findings.
<b>Getting feedback from informants.</b>	As part of the triangulation process, the solicitation of feedback involved the informants reviewing drafts of the case reports. Yin (1994) emphasises the importance of this test as a way of corroborating the essential facts and evidence presented in the case report and enhancing the study's construct validity.
<b>Comparing and contrasting variables.</b>	Sowden and Keeves (1988) inform that making comparisons and contrasts between persons, cases, groups, roles, activities and sites significantly assists the verification process.

This table is adapted from the recommendations in Miles and Huberman (1994).

These tactics were applied progressively during the interpretation process, in accordance with the suggestion of Webb, Campbell, Schwartz and Sechrest that researchers should:

...begin with tactics that are aimed at assuring the basic quality of the data, then move to those that check findings by various contrasts, then conclude with tactics that take a sceptical, demanding approach to emerging explanations (1966: 66).

Where possible, then, a variety of tests were used for each outcome and, as a result, the rigour of both methodology and findings were significantly enhanced.

### ***3.7.5 The mode of analysis.***

The interpretation of the data, and the verification of the conclusions, were facilitated by the use of the QSR NUD\*IST (version 6.0) software package. In the method literature, it has been emphasised that computer software programs such as NUD\*IST, are of significant value in qualitative analysis and any subsequent theory building (Kelle, 1995; Richards & Richards, 1995; Weitzman & Miles, 1995). The essential elements of the computerised interpretation and verification procedures were as follows.

The interview transcripts were imported into the NUD\*IST software database, following which the categories (i.e. the coding of the data) were established as a series of nodes. These nodes formed part of an index system that the software depicts as a 'stem and leaf' system of association. As noted, this information is reproduced in Appendix C. The generation of category nodes, and the subsequent coding of the data into these nodes, occurred in two stages.

#### *3.7.5.1 Stage one coding.*

The initial categories were based upon the subordinate units of analysis, that is, the characteristics of the case entities that the researcher sought to understand, namely ‘what is government?’, ‘the role of government’, ‘the role of chance’, and ‘clustering in a regional economy’. These appear as Nodes 1, 2, 3, and 4 in the ‘stem and leaf’ depiction of concepts. Node 5 was allocated the ‘facts and figures’ associated with the case, and as such contained data relating to industry sales, TLSI market share etc. The secondary units of analysis (e.g. the ‘leaf’ concepts such as ‘government agencies’ and ‘parliamentarians’) were then attached as sub-categories. The interview transcripts were then scrutinised for significant terms, events, and issues located therein according to units of observation, and coded according to the index system. NUD\*IST was then utilised to search the text, and then to allocate segments of the data to a designated node. A sample of this process is recorded in Appendix C, shows the role that the Tasmanian Bridge Disaster played as a chance event in the development of the TLSI cluster (i.e. the content of node 3.1). Where it was appropriate, data were allocated to more than one node for analysis.

#### *3.7.5.2 Stage two coding.*

Nodes 6, 7, and 8 were then established to categorise the results of the analysis of nodes 1 through 5. Unlike nodes 1 through 5, these nodes were not determined by the units of analysis, but rather to group together the outcomes of further analysis. NUD\*IST was utilised to search through the preliminary ‘stage one’ coding for those factors that were common between the various concepts under review in this study. The results were then assigned to node 6-8 sub-categories in a similar fashion to that



undertaken in stage one. In accordance with of Porter's ICT, the emergent 'result nodes' were: Node 6: Government Policy over Life Cycle; Node 7: Government Policy and Chance Events; and Node 8: Development of Porter's diamond factors.

In order to facilitate the theory building process later in the research process, memos were maintained about the data, their categories, and the relationships between them as they emerged. Designed to store and organise ideas about the data, they were integrated into the analytic process. Wilson suggests that memos assist in the development of theory in five important ways:

1. They require that you move your thinking about the idea to a conceptual level.
2. They summarise the properties of each category so that you can begin to construct operational definitions.
3. They summarise propositions about relationships between categories and their propositions.
4. They begin to integrate categories with clusters of other categories.
5. They relate your analysis to other theories (1985: 420).

NUD\*IST has a facility for the creation and retention of such memos for later consideration and analysis. Utilising the memo capability within the NUD\*IST package, memo reports were generated by the software during 'stage two' coding. From these reports, the interaction between the parties' became clearer, the context of the various phenomena surfaced, causes and effects were revealed, and motivations were exposed. The manner in which this material was used to develop the outcomes of the study is presented in the next section.

### **3.8 DEVELOPING RESEARCH OUTCOMES.**

Consistent with the stated research purposes, the analysis led to descriptive, exploratory, and explanatory outcomes. These were achieved in the following manner.

#### ***3.8.1 The descriptive outcome.***

The role of description in qualitative inquiry extends beyond a mere narration of the phenomena of the case. Instead, it presents the issues and themes that are central to the analysis, either through the illustration of a particular theme, or as a method of demonstrating a combination of issues (Denzin & Lincoln, 1994). Given that this study involved the input from 25 actors whose experience of the phenomena stretches over 25 years, the issues and themes in this research were contextually bound, and therefore, their purpose and meanings could not be captured without first understanding their origins. The complexity of the Tasmanian government's interaction with the TLSI in light of the economic climate of the region could only be comprehended by producing 'thick descriptions' of the contextual elements. This approach is recommended by Guba and Lincoln (1989). The literal accounts of time, place, economic circumstance, and so on embedded in the report facilitated the interpretation of the subjects' attitudes and values from their concrete behavioural displays. From these accounts, analytical judgements concerning the research question were made, working propositions generated, and relationships identified.

As no research can incorporate all aspects of a case, the report in this thesis represents an incomplete representation of the phenomena. However, the abridgement of peripheral data did not diminish the interpretive value of the investigation.

Addressing this issue, Hughes suggests that:

...although descriptions have a fringe of incompleteness about them...this does not impair their ability to do the job, since nothing like completeness is ever attempted by the speaker of a natural language. ●often a single descriptor will provide an adequate description...the remaining particulars being, as it were, bracketed away for present purposes or their sense 'filled in' using the specifics of the context in which they are used (1980: 85).

As an instrument through which the phenomena of an episode are exposed (Sekaran, 1992), the descriptive component is clearly the foundation of case study research. Having identified the phenomena of the TLSI case, the researcher could investigate the dimensions, manifestations, and relationships of those phenomena. This is discussed below.

### ***3.8.2 The exploratory outcome.***

The distinguishing feature of inductive inquiry is that theoretical concepts emerge from the case data, rather than being imposed upon it (Denzin & Lincoln, 1994). Inductive research is related to symbolic interaction (Chenitz & Swanson, 1986), a theoretical model in which investigation focuses on the ways people communicate and interpret meaning. By viewing the subjects' behaviour from this perspective, theories and propositions about social phenomena can be derived from the data of social research.

Emanating from the narrative data, from the findings of previous research, and researcher preconceptions, inductive research may not be able to offer the concrete reassurance that the hypothetical-deductive approach offers (Denzin & Lincoln, 1994). However, inductive theory building does produce valuable research outcomes that are 'less sterile' than hypothesis testing. The generation of theory from case evidence in this study used four procedures: category development; linking categories; testing emerging relationships; and connecting with existing theory. Each is briefly described below.

As noted, category (node) development was executed utilising NUD\*IST software. Throughout the coding process, data were assigned to emerging categories to build a hierarchy of 'units of analysis'. In this procedure, Field and Morse suggest that:

Identified categories are accumulated until it becomes clear to the researcher those properties and characteristics of the elements which fit into that particular category. The researcher can then identify the criteria for further instances that would fit the specific category. A category is saturated when no new information on the characteristics of the category are forthcoming (1985: 111).

Once a category was 'saturated', a definition based on its inherent properties was formulated so as to demonstrate further data collection and stimulate theoretical reflection. Categories were refined, produced and discarded as required.

The links between the various categories were identified through the use of the NUD\*IST software, and integrated into the 'result nodes' 6 through 9. Scrutiny of the result node reports facilitated consideration of preliminary propositions, as recommended by Eisenhardt:

From the within-site analysis...overall impressions, tentative themes, concepts, and possible relationships between variables begin to emerge. The next step of this highly iterative process is to compare systematically the emergent frame with evidence from [the] case in order to assess how well or poorly it fits with the case data (1989: 542).

In order to test the emerging relationships, key variables within the 'result node' reports were identified and studied to ensure relationships held within and between categories. Although Eisenhardt's (1989) discussion of this process focussed on the multiple case study method, the principle holds for single case designs. Rather than testing relationships between individual perspectives were investigated:

A step in shaping hypotheses is verifying that the emergent relationships between constructs fit with the evidence in each case. Sometimes a relationship is confirmed by the case evidence, while at other times it is revised, disconfirmed, or thrown out for insufficient evidence. This verification process is similar to that in traditional hypothesis research (Eisenhardt, 1989: 542).

The emergent propositions were then compared to, and contrasted with, existing theory. This imperative is emphasised by Eisenhardt:

Examining literature which conflicts with the emergent theory is important for two reasons. First, if researchers ignore conflicting findings, then confidence in the findings is reduced. Second...conflicting literature presents an opportunity. The juxtaposition...forces researchers into a more creative, frame-breaking mode of thinking...The result can be deeper insight into both the emergent theory and the conflicting literature...Literature discussing similar findings...ties together underlying similarities in phenomena normally not associated with each other. The result is often a theory with a stronger internal validity, wider generalisability, and a higher conceptual level (1989: 544).

Eisenhardt's (1989) approach is similar to Yin's (1994) tactic of pattern matching in which empirically based patterns coincide with, or contradict predicted patterns. Hartwig and Dearing (1979: 9) emphasise the procedures discussed above by suggesting that the "underlying assumption of the exploratory approach is that the

more one knows about the data, the more effectively data can be used to develop, test, and refine theory.” Having identified the exploratory outcomes of the TLSI case, the researcher was able to identify the specific roles undertaken by the Tasmanian government over the TLSI cluster’s life cycle, and propose a plausible Diamond Factor Model for a regional Australian economy. The identification of these government roles also allowed the researcher to undertake analysis so to explain their rationale over the TLSI cluster’s life cycle.

### ***3.8.3 The explanatory outcome.***

Unlike quantitative research, where causal relationships are determined by the statistical analysis of dependent and independent variables, qualitative inquiry explanation rests on the researcher’s observation of the same, but from the case description (Denzin & Lincoln, 1994). Due to the complexity of the interrelationships and the imprecise measures inherent in the interpretive approach, the explanatory process relies on deriving, organising, and integrating ideas about the manner in which phenomena are interrelated, and which offer understanding of the underlying causes of phenomena (Polit & Hungler, 1993).

Warning that the process of explanation building from case studies is not well documented, Yin suggests that the final explanation results from a series of iterations, and recommends the following procedure:

- Making an initial theoretical statement or an initial proposition.
- Comparing the findings of an initial case against such a statement or proposition.
- Revising the statement or proposition.
- Again revising the statement or proposition.
- Comparing the revision to the facts of a second, third, or more cases.
- Repeating this process as many times as is needed (1994: 111).

Although Yin's (1994) process refers to multiple case studies, its basic features were applied in this research. As explanatory research invariably leads to alternative conclusions about the same set of results, Yin's (1994) iterative approach clarified the outcomes by consolidating some findings and discounting others.

### **3.9 CHAPTER SUMMARY.**

This chapter described the methodological issues relating to the research. Based upon the need for a longitudinal qualitative approach to the research questions, the single case study method was used to address the descriptive, exploratory, and explanatory purposes of the inquiry. A protocol was developed to guide the investigation, and to assist in any further consideration of the case. Information was gathered using documentary records and semi-structured interviews. Verification was fundamental to the study, and was engaged at every stage of the inquiry. The processual elements were particularly influenced by Eisenhardt (1989), Miles and Huberman (1994), and Yin (1994). The categorisation, coding, and analysis of the case data was undertaken using the NUD\*IST software package, details of which are included in Appendix C. The following chapters present the results of the adopted methodological approach, and are discussed in accordance with the 'organisation of the thesis' presented in Chapter One.

## **CHAPTER FOUR**

### **THE EMERGENCE OF THE TASMANIAN LIGHT SHIP CLUSTER: AN HISTORICAL OVERVIEW.**

#### **4.1 OBJECTIVES OF THE CHAPTER.**

The objectives of this chapter are two-fold. Firstly, it provides a brief account of the interaction between Australia's shipbuilding industry and government policy development since 1789. As such, the chapter provides the political and economic context within which the TLSI cluster was to eventually develop. Secondly, this chapter provides an account of the events surrounding the emergence of the TLSI cluster between 1975 and 2002. This chapter, therefore, provides the basic historical context upon which the analysis and discussion of the research questions will be based.

#### **4.2 AN ACCOUNT OF THE HISTORICAL INTERACTION BETWEEN GOVERNMENT POLICY DEVELOPMENT AND AUSTRALIA'S SHIPBUILDING INDUSTRY 1789-1990.**

Australian shipbuilding has a history dating back to 1789, with the construction of the nation's first commercial vessel, the 10-ton convict carrier *Rose Hill Packet* (Inglis, 1988). As the population of Australia's colonies grew (through the arrival of convicts and free-settlers) it became clear to those in government that a strong need existed for trade amongst the colony's major centres (Hughes, 1968). The vastness of the Australian mainland (characterised by an absence of road or rail systems) and the fact that one of the British outposts was the island colony of Van Dieman's Land



(hereafter 'Tasmania'), meant that shipping lines presented the most efficient form of cargo transport available (Hughes, 1968). Fears were expressed, though, as to the possibility of convicts using the newly constructed ships in their escape plans. The need for colonial trading, however, outweighed many of the concerns surrounding the possibility of prison escapees, and the decision was taken by the New South Wales (NSW) colonial government to construct the first dedicated shipyard in Sydney Town in 1795 (Hughes, 1988; Inglis, 1988).

The benefits of trade between the colonies were soon realised, and during the early part of the 19<sup>th</sup> century, a vibrant private sector shipbuilding industry developed (Hughes, 1988). The profit potential of the industry was quickly recognised by entrepreneurs at the time, with the first of many privately owned and controlled shipyards appearing in Sydney Town in 1798 (Flannery, 2000). By 1820, in response to the increased shipbuilding activity undertaken by the private sector, the NSW Board of Trade Department relaxed the regulations governing the tonnage measurements and hull design of Australian colonial shipbuilding. The alteration effectively enabled Australian shipbuilders to undertake the design and construction of 'more innovative vessels' in line with the American and Spanish trend towards more 'racy' models (Inglis, 1988).

By the 1830's, the ability of Australia's shipbuilding industry to innovate both ship design and construction was well established (Inglis, 1988). Nowhere in Australia, however, had the innovative spirit been more effectively adopted than in Tasmania. In Tasmania, shipbuilding was the logical response to the obvious needs of an island community with a prosperous whaling and sealing industry (Hughes, 1968). The

Tasmanian colonial builders began to construct vessels large enough to take their place on the lucrative Australia-England route, and between 1838 and 1848, 107 vessels were built in the island colony. By the 1850s, five main centres of shipbuilding activity developed in the island colony: in the northern town Launceston, the capital of Hobart, the Huon River district, and at the penal settlements - first Macquarie Harbour, and then later at Port Arthur (Hughes, 1988).

During this time, the Tasmanian shipbuilding industry was producing more ships than all of the other Australian colonies combined (Hughes, 1968). It was the five-year period to 1853, however, that was the height of ship building in Tasmania, with 118 vessels constructed at an average of 78 tonnes apiece. Included in these was the largest ship built at that time in Australia, the 580 tonne *Tasman*. The factor conditions cited for Tasmania's dominance in colonial shipbuilding was the associated labour and transport costs, which were significantly lower in Tasmania than in the mainland colonies, and the availability and excellence of the native timber for ship construction (Hughes, 1968).

In 1901, the six colonial governments undertook a constitutional agreement to incorporate a federal system of government, in addition to the colonial system already in place, to oversee issues affecting Australia as a Commonwealth nation. In 1911, the federal Australian government undertook its first major naval shipbuilding program (Denoon, Wyndham & Mein-Smith, 2000). The prospect of World War I saw further increases in demand for ship construction, albeit driven by federal government demand for military vessels. Between 1912 and 1917, Australian shipyards completed 'an impressive number' of major vessels for the war effort,

especially given the relatively small sizes of shipyards throughout the country (Royal Australian Navy, 2001).

By 1918, the wartime losses to the Australian fleet were substantial, and the federal government undertook two main strategies to overcome the shortage. Firstly, the federal government established the publicly owned 'Australian Shipping Line', from which it hoped to recover wartime losses through the generation of demand for new vessels. Secondly, it launched a major localised shipbuilding design and manufacturing programs in each of the states to further alleviate the transport issues associated with Australia's inadequate ship numbers (Beeson, 1997). The federal government's industry plans remained reasonably intact throughout the economically buoyant 1920s, but were somewhat ineffective in the context of the Great Depression that assumed global economic prominence in 1929. Indeed, by the nadir of the depression in 1933, there was virtually no shipbuilding in Australia, with most of the remaining shipyards diversifying into heavy engineering products in order to remain open for business (Beeson, 1997).

The Great Depression's influence upon economic activity was eventually overcome by the expectation of a second world war (Madsen, 2001). Germany, a nation unhappy with the reparation payments to the allies and the failure of the Weimar Republic after the First World War had increased its military capabilities and had begun to annex adjacent provinces (The History Place Web-site, 2001). Other nations emulated the German increases in production, especially in terms of military and naval manufacturing; Australia was no exception. Indeed, between 1933 and the

beginning of World War II, in excess of one thousand tonnes of ships were built to completion by Australian shipyards (Hughes, 1988).

The prospect of World War II also witnessed the resurgence of Tasmanian shipbuilding in both the private shipyards and in the newly established state government yard at Hobart's Prince of Wales Bay. The government yard constructed wooden-hulled cargo vessels to 600 tonnes and at its peak employed more than 600 people. Private yards at Battery Point in Hobart, and on the Tamar River in the northern city of Launceston, built shallow-draft hospital vessels and harbour defence motor launches. Australian shipbuilding received a further boost during the Second World War, with production increased to such an extent that during the war period itself, 120 vessels (an average of one per fortnight) were launched ready for duty (Royal Australian Navy, 2001). By the end of the war, approximately 20 000 people were directly engaged in the building of ships and in the production of machinery required for the shipbuilding industry. Given the extent of federal government orders and involvement in the industry during this period, it was less than surprising that by 1945, the principal shipyards were those run by the federal government (Inglis, 1988).

After the surge of activity associated with the war effort, the industry again declined and stabilised at a level commensurate with servicing the local demand for fishing vessels and other craft. In efforts to once again stimulate the private sector's interest in the nation's shipbuilding industry, the federal government introduced the first of its subsidy schemes in 1947 (Beeson, 1997). The subsidy was aimed at protecting Australia's post-war industry from somewhat more efficient international competitors, and allowing domestic customers to purchase ships from Australian producers at

competitive prices. The subsidy itself was in the form of a 25 percent rebate to shipbuilders on the total costs associated with building a vessel greater than 500 gross tons (Beeson, 1997).

The subsidy system heralded a golden age for Australian shipbuilders, with both naval and merchant shipbuilding programs maintained at levels not approached during any similar peacetime period (Beeson, 1997). The system was deemed so important to the survival and nurturing of the industry, that successive federal governments not only retained the subsidy, but also increased its influence and availability. For example, in 1955, the subsidy was increased to 33 percent of the costs incurred in the manufacture of vessels greater than 500 gross tons. In 1964, the availability was increased to those manufacturers that produced vessels greater than 200 gross tons. In 1969, the subsidy was increased to a 45 percent rebate on total production costs, and lastly, in 1972, the subsidy was made available to all producers of vessels greater than 150 gross tons. Due to the policy initiative, the Australian shipbuilding industry throughout the 20<sup>th</sup> Century was characterised by the construction of large vessels for commercial activities, of which 90 percent were for the domestic market (Inglis, 1988).

Federal government support was also forthcoming through other channels. In 1956, for example, the Export Finance and Insurance Corporation (EFIC) was established in order to increase demand for Australian ships in the international marketplace (Beeson, 1997). EFIC's purpose was to promote the export sales of Australian ships by providing the finance to international buyers to purchase Australian ships. More specifically, EFIC provided up to 80 percent of the purchase price of new vessels to buyers at an interest rate of some eight percent per annum, for a maximum loan term

of eight and one half years (Beeson, 1997). Although the government schemes helped to protect the nation's shipbuilding industry from international competition, thereby protecting jobs and issues of national security, they also had the quite deleterious effects of a 'false economy' that would eventually serve to cripple the industry (Beeson, 1997).

The protectionist approach of successive federal governments, manifesting in marked increases in subsidy assistance, meant that Australian shipbuilding firms were not exposed to the demand cycles of the international market, a fact borne out by the economic shocks and rationalism that would characterise politics in the 1970s and 1980s (Beeson, 1997). Due to major oil price rises in the mid 1970s, which saw 300 percent increases in the cost of fuel, the western first-world economies experienced a new economic phenomenon of 'stagflation', which was characterised by markedly increased production costs and simultaneously diminishing demand (Helliwell, 1988). The result for the shipbuilding industry was that demand for merchant shipping declined by 45 percent world-wide between 1974 and 1976, creating an over-supply of shipbuilding capacity of the order of 50 percent (Lloyd's Register, 1977). This slump continued through the 1970s and well into the 1980s, as the effects of the oil crisis impacted upon a shipbuilding industry endeavouring to recover from the first wave of economic instability (Lipietz, 1987; Strath, 1987; Todd, 1985). The resultant recessionary conditions in Australia were manifested in increased unemployment, significant inflationary pressure on commodity prices, and a decrease in governmental support for the 'Fortress Australia' economy afforded by numerous subsidy and tariff schemes.

The Australian shipbuilding industry, which had been heavily supported by direct government subsidies since 1947, suffered greatly during 1974-1976, but given the long lead-time associated with ship construction, the consequences of the 'oil shocks' took several years to noticeably take effect (Beeson, 1997). By the end of the 1970s, however, and even with a reduced subsidy of 25 percent of costs, the Australian shipbuilding had regressed once again to virtually nil production, and was viewed globally as being synonymous with inefficiency, low productivity (i.e. obsolete plant and equipment), poor management practices, and antagonistic industrial relations (Holland, 2001). Although the contraction of Australia's shipbuilding industry was not unique in the world at this time, the reduction was so severe that Australia shipbuilders alone accounted for fifteen percent of the world's diminished production between 1975 and 1985, a figure second only to Sweden (Beeson, 1997).

In an effort to rejuvenate the nation's shipbuilding industry and partially dismantle the policies 'protecting' the nation's shipbuilding industry, the federal government introduced the Bounty Ships Act of 1980, which 'replaced' the existing subsidy scheme and effectively increasing the rebate to producers to 28 percent of production costs. Although the Act did allow shipbuilders partial relief from the economic downturn, it was essentially an identical policy platform to its predecessor, and did little to encourage the development of an internationally competitive sector. Indeed, the Australian shipbuilding industry continued to operate without reference to external competitive market forces and technological development (Beeson, 1997).

Given the demonstrable lack of shipbuilding industry reform in the deregulating Australian economy, the federal government undertook a further redesign of the Bounty Ships Act in 1984. The critical difference was that Australian shipbuilders could now only access the rebates available if they met targets associated with the export sales of their vessels; in short, the Act was only accessible to firms that could compete in the international market. The effectiveness of the Act was demonstrated by the fact that between 1984 and 1989, export orders for Australian built vessels increased from virtually nil to approximately \$150 million (Shipbuilding Industry Report, 1992). The Bounty Ships Act also had the desired effect upon the structure of the industry, with a report from the Review Committee on Marine Industries, Science, and Technologies stating that:

The [Australian] shipbuilding industry has successfully restructured itself in the last five years [1987-1992] to become a successful exporter with good prospects for the future, based on quality, innovation, entrepreneurship, management skills and improved technology (Shipbuilding Industry Report, 1992:1).

Further revisions to the Bounty Ships Act were made in 1989, which redefined the gross dead weight criteria and export markets that qualified for the federal government assistance (Beeson, 1997). The changes included a restriction of the ship's dead weight capacity to between 150 gross tons and twenty thousand gross tons, and further stipulated that the term 'export' did not include the country of New Zealand, nor to any authority governed by a Commonwealth nation. The renewed focus of the shipbuilding assistance program was upon the generation of export sales, and resulted in the need for Australian shipbuilders to incorporate world-best practices in their market research (i.e. identifying market opportunities) and research & design (i.e. improving its levels of quality and innovation) (Industry Audit, 1998).



In addition to the change in the Bounty Ships Act, the federal government also introduced new legislation in the form of the Shipbuilding Innovation Scheme Bounty Act 1989. The purpose of this Act was to encourage and strengthen the industry's focus upon product research and development, as well as design innovation. It attempted to achieve this end by providing a 50 percent subsidy rebate on research and development expenses, as well as a two percent subsidy rebate for costs in changing methods of production (Shipbuilding Industry Report, 2001). Since the 1990s, the Australian shipbuilding industry has received little additional federal government attention in terms of assistance packages, with the majority of its policy development directed at industrial relation reforms (see Holland, 2001). Given the diminishing federal protectionism for the shipbuilding industry since the 1980s, it is interesting to note the active role that the Tasmanian government undertook in the facilitation of the state's TLSI cluster during this time. Given the research questions posed in Chapter Two, the next section focuses on the incidents and interactions that lead to the inception and development of the TLSI cluster between 1970 and 2002.

#### **4.3 THE HISTORY OF THE EMERGENCE OF THE TLSI CLUSTER: 1970-2002.**

##### ***4.3.1 Tragedy and the inception of the TLSI cluster's hub firm: International Catamarans.***

During the early 1970s, there had been some political discussion concerning the reintroduction of a 'Trans-Derwent' ferry service in Tasmania (Wickham & Hanson, 2002). It had been suggested that the service would be one that predominantly served the state's tourist population, given the prominence of the Derwent River in the capital city's landscape. Robert Clifford (hereafter 'Clifford'), a Tasmanian shipbuilder and entrepreneur, was keen to initiate this business opportunity, and in

1972, he and his father formed the Sullivan's Cove Ferry Company. Clifford was so enthusiastic about the new venture that he simultaneously approached two friends (Trevor Hardstaff and Bill Burnett) at the Hobart Marine Construction Company with some preliminary design plans for his proposed 'Derwent River Ferry' (Clifford, 1998).

Clifford was keen to have production underway immediately, and in fact, the details of his ferry's design were "worked out by the builder and Clifford as construction progressed" (Clifford, 1998: 14). By mid-1972, construction of Clifford's first ferry, the 20-metre steel-hulled *Matthew Brady* (named after an infamous Australian bushranger) was completed by Clifford and of his friends. Armed with a suitable vessel to handle a passenger ferry service across the Derwent River, all that the Sullivan's Cove Ferry Company had to accomplish was a successful bid for the rights to service the market (Wickham & Hanson, 2002).

Business proved to be highly profitable in the early stages of the newly formed ferry service, with both tourists and locals taking advantage of the novel attraction. In order for Clifford to generate sales growth, and indeed protect his source of income, he decided to build a second ferry. A second ferry was designed, commissioned, and built in 1973 by the same builders as the *Matthew Brady*. Again, the ferry was named after an Australian bushranger, this time *James McCabe*. Technologies had improved since the construction of the *Matthew Brady*, and as such, the new ferry was actually somewhat faster and more comfortable than the original (Clifford, 1998). The decision to construct a second ferry was to prove rather fortuitous given the tragic events in early 1975.

On the 5th January, at 9:27 p.m., the commercial bulk ore carrier *Lake Illawarra* crashed into the 19<sup>th</sup> pier of the Tasman Bridge, claiming twelve lives, and severing the well populated Eastern Shore's link with the city of Hobart by knocking out an 80 metre section of the bridge (Wickham & Hanson, 2001). The physical separation of Hobart's eastern shore residents from the west meant that the only access to the city's central business district was a single-lane, country road detour, which in peak traffic could take several hours to traverse (Wickham & Hanson, 2002). Tens of thousands of motorists and cyclists were now unable to travel easily to their required destinations, be it for work or pleasure; Clifford was in the enviable position of 'being in the right place at the right time'.

#### ***4.3.2 Inception of the TLSI cluster: The emergence of the hub-firm.***

In response to the increased demand for river transport that resulted from the Tasman Bridge tragedy, Clifford's family business hurriedly built a third ferry, the *Martin Cash*. Such was the priority of the project that "records were broken in the rush to get the craft into service quickly" (Clifford, 1998: 18). Although the ferry service boasted a third boat, demand for the ferry service comfortably exceeded supply, and in late 1975, a fourth ferry was commissioned. Given the urgency of demand in the market, the latest ferry, the *Lawrence Kavanagh*, was constructed by Clifford's business in what was also described as a 'record time'. As with the *Martin Cash*, there was little fanfare at its launch, simply a push into the Derwent River on her way to pick up a load of customers. The four bushrangers were to serve as a monopoly west-east link for three years, and transport in excess of nine million paying passengers whilst repairs to the Tasman Bridge were underway.

In order to improve customer service and increase the business' revenues, Clifford hired a technologically advanced, British-built fast ferry, the *Michael Howe*. The *Michael Howe* was twice as fast and twice as comfortable as the 'bushranger fleet' owned by Clifford, and was an instant success with the public. Unfortunately, the *Michael Howe* was also a maintenance intensive investment, with 75 percent of all company maintenance expenditure spent on the new vessel (Clifford, 1998). Clifford was unimpressed with the boat's design and maintenance requirements, despite the public's obvious delight with the faster service (Wickham & Hanson, 2002). The flaws that Clifford observed in the ferry's design (for example, that the mechanics were far too complicated and maintenance intensive) motivated him to build and design his own range of fast catamarans. Clifford was noted as commenting that: "If the English can sell 34 heaps of rubbish like this [around the world], how many properly engineered fast ships could we sell from Tasmania?" (Clifford, 1998: 22). With this opportunity, the Clifford business began its foray into the fast-ferry building industry.

The question for Clifford was how to develop a boat with the speed and the passenger appeal of a fast-moving vessel, yet maintain the basic economies of a conventional ferry. Clifford, with the help of friends that worked in other Tasmanian maritime businesses, studied the merits of numerous low-resistance hovercrafts and the catamaran-style hovercraft was chosen as the best available design template. Clifford used this hovercraft design, but altered it to include twin-hulls (somewhat wider than the norm for catamarans at the time) but to exclude the 'air-lift equipment' standard to the hovercraft altogether (Clifford, 1998). Under the tenets of recently introduced Tasmanian Strategy Plan (SSP), however, the 'thought provoking' ship design was

not sanctioned by the maritime authorities as a legal means for general public transportation. In accordance with the legislation supporting the SSP, whose aim was to ensure higher quality production from within the state's industry (see Green, Garcia, Chaple, & Davis, 2002), Clifford (and indeed every shipbuilder within the state) was forced to seek the services of a qualified naval architect to endorse any new ship design. Given that no such expert existed in Tasmania, Clifford had to travel to New South Wales to meet the certified naval architect, Phil Hercus, who resided in Sydney. The plans were checked by Hercus for design flaws, and after he issued a certification of seaworthiness, the *Jeremiah Ryan* was conceived with the sanction of the government authorities (Clifford, 1998).

Given the inadequacy of Clifford's own shipyard to accommodate the construction of the new vessel design, the *Jeremiah Ryan* was built in a Tasmanian government owned wharf shed at Hobart's Prince of Wales Bay in September 1977. Construction of the vessel was undertaken by collaboration between Clifford employees and a number of Tasmanian maritime tradesmen. Although not as stylish as Clifford may have liked, the steel catamaran was considered a major breakthrough, achieving some twenty-six knots in initial speed trials, considerably more than the eighteen originally hoped for in the design stage. After the success of the *Jeremiah Ryan*, Clifford and Hercus entered into a partnership to form International Catamarans (Incat) Pty Ltd of Australia, one of Tasmania's most successful business ventures (Wickham & Hanson, 2002).

#### ***4.3.3 The Tasmanian shipbuilding industry in 1977: An introduction to the existing TLSI cluster firms.***

In 1977, Tasmania's shipbuilding industry consisted of a loose collection of single business firms, catering to the needs of specific target markets (such as specialised steel hull construction, winch construction, marine maintenance etc). Of the eleven entities that comprised the TLSI cluster in 2002, only five were operating in 1977, the year that the TLSI cluster's 'hub firm' – International Catamarans – was established. The five entities were Colbeck & Gunton, Skeel's & Perkins, Muir Engineering, FC Management, and the publicly funded Australian Maritime College (AMC). Colbeck & Gunton, established in 1976, began their operations as an insulation contractor involved in both the domestic (home insulation) and industrial market (providing insulation for existing commercial operations and new building constructions). Skeel's & Perkins, a foundry and machining business, specialised in the construction of general engineering products for commercial use. In particular, the firm focused its business on precision-machined components made from cast iron, alloy steel, stainless steel, bronze, and aluminium. Muir Engineering, established in 1968, specialised in the manufacture of winches and anchoring systems for the marine sector. FC Management was established to cater for the demand for steel hulled tuna fishing vessels; as such it specialised in both the design and construction of fishing vessels. In 1977, the federally funded AMC represented the only training institution serving the specific educational requirements of the nation's marine sector. The AMC was formed three years prior to the establishment of Incat, and is located in Tasmania's second largest population centre, the City of Launceston.

#### ***4.3.4 An overview of the international success of Incat and the emergence of the TLSI cluster: 1977 – 2002.***

The AMC, originally formed in 1974, was charged with providing the training needs of Australia's domestically focused shipbuilding industry. However, given the Australian federal government's policy to improve the nation's standing as an international shipbuilding centre, in 1977 the AMC's role was fundamentally altered such that it responsible for the modernisation of the national industry's training programs to international standards. So important was this change, that almost immediately after its corporatisation the federal government provided it with a \$3.4 million fisheries training vessel (The Examiner, 1979a), as well as a new \$3 million three-story state-of-the-art education complex (The Examiner, 1979b). Of the new training centre, a representative of the state's Labor government stated that:

The development of the Australian Maritime College is one of the most important educational building operations to occur in Tasmania's history. Shipbuilding in Tasmania will continue to be buoyant as long as education continues to expand in the state. The extensive education complex being developed on the banks of the Tamar River at Newnham will do much to ensure shipbuilding buoyancy. The \$3 million contract is for a three-story building, which will provide about 22 205 square metres of floor space for classrooms, laboratories and office accommodation (The Examiner, 1979b).

Despite the AMC's charter for improving the educational infrastructure for the marine sector, the firm driving the innovation within the local Tasmanian industry, Incat, didn't use the institution in its development of the world's first 'aluminium and steel' hull, nor the world's first all-aluminium hull in 1979. During this time, there existed no aluminium welding theory for the AMC to instruct; given the nature of the alloy itself there was little call for such knowledge (aluminium alloy contains wood as one of its major ingredients, and ignites at the high temperatures associated with the welding process). Instead, and given his desire to build lighter and faster catamarans,

Clifford was forced to call on the tacit knowledge and experience of other Tasmanian shipbuilders to help design, and construct, the required aluminium-based hulls in a trial and error fashion on the Derwent River (Clifford, 1998).

The trial and error research undertaken by Clifford (and his network of maritime industry friends) was eventually successful, and resulted in the construction of the first steel-aluminium catamaran, the first of which to be sold was the *James Kelly* in June of 1979. The project was considered highly important, as it was the initial foray into new shipbuilding technologies and processes, the most important of which was arguably the perfection of aluminium-based welding. The radical design and building processes invented by Incat resulted in the company's ferries being much faster and cheaper to run than the conventional ferry designs. Consequently, the purchasers of the *James Kelly* considered it a great success. The commercial success of the *James Kelly* soon became the talk of the maritime industry, and resulted in the first export orders for Tasmania's aluminium catamarans (Clifford, 1998).

Although the Australian federal and Tasmanian state governments were not involved in Clifford's experimentation during the late 1970s, they were both involved in efforts to position Tasmania as a centre for maritime research. In an effort to take advantage of Tasmania's geographical location and resurgence as a centre for maritime innovation, a number of state government initiatives were implemented in the late 1970s and early 1980s aimed at positioning Hobart as Australia's southern centre for Antarctic and marine research. In 1980, moves were made in the federal parliament (by Tasmanian senators) to transfer the oceanographic research unit of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the



base for a new Antarctic research vessel to Hobart. The main argument supporting this move was Hobart's geographic location as Australia's closest port to Antarctica and the Great Southern Ocean (The Mercury, 1980). After the successful implementation of this strategy, the Tasmanian government undertook further measures in 1981 to boost the state's shipbuilding interests by planning a one-stop international ship repair and servicing industry to capitalise on the state's growing reputation as a centre for maritime research and innovation (The Mercury, 1981).

By 1982, the reputation and demand for Incat's aluminium fast ferries had increased to such a level that the Clifford claimed his company were unable to fulfill many orders, due to both the number, and size of boats requested (Clifford, 1998; The Mercury, 1982). Due to this increased workload, and missed sales opportunities, Incat began negotiations with the Tasmanian government to purchase part of the state owned 'Gasworks' site on Hobart's waterfront. The application was met with some governmental bureaucratic resistance, as the site in question was not specifically zoned for such use. However, after Clifford met with the Premier Gray to explain the importance of a new and larger factory to Incat's growth potential, and its feasibility to remain within the state, the Tasmanian government undertook direct action that cleared the way for the firm to purchase the site (The Examiner, 1982). The nature of Incat's negotiation with the Tasmanian government, a strategy that would be repeated in many of its future dealings, may be implied in a government press release that accompanied the announcement:

...the government is pleased to be able to open the way for Incat to stay in Tasmania. The company is an important employer in its own right, and created work for local suppliers and sub-contractors. [A government spokesperson] said that the company had developed reliable vessels and was reaping the rewards of the initiative and skill of

its founders....he also gave credit to the local suppliers and sub-contractors who had contributed to the vessel construction (Cleary, 1982: 1).

The Tasmanian government's facilitation of Incat's relocation to the Gasworks site in Hobart not only served to secure the company's employment of Tasmanian workers; it also had beneficial consequences for those firms associated with Incat. By the mid 1980s, Clifford had begun to incorporate the production output of some other local marine manufacturers in his newly conceived vessels. For example, peripheral items to Incat's catamaran construction, such as safety equipment and insulation were now sourced from local manufacturers Muir Engineering and Skeel's & Perkins. In order to secure these orders from Incat, however, these firms were required to similarly innovate their products to suit the light-weight needs of Incat's new generation of fast catamaran.

Further Tasmanian government support was forthcoming for Incat in 1983, when Premier Gray backed a proposal from Incat to build a revolutionary wave-piercing catamaran for the Tasmanian government-controlled Bass Strait passenger ferry service (Clifford, 1998). Incat had approached the Tasmanian government with the idea, and a plea for financial assistance for the development of the vessel, which was estimated to cost between \$6 and \$8 million to produce (The Mercury, 1983). Clifford said of this plea that "government support is crucial to the development of the vessel...and development grants are available and we have applied for them" (The Mercury, 1983: 7). The new wave-piercing catamaran was funded by grants from both the Tasmanian and federal governments in mid-1984. The Tasmanian government's support for Incat's project came in the form of a loan guarantee for \$8 million, one that would have been paid by the Tasmanian taxpayer had Incat defaulted. The federal government grant was in the form of a dollar-for-dollar

reimbursement to Incat for the amount it spent developing the concept, an amount that equated to approximately \$250 000 (The Examiner, 1984). The construction and testing of the new wave-piercing catamaran was also the first time that Incat had utilised the services of the AMC, which had recently been granted funds to install a state-of-the-art tank testing facility (The Advocate, 1984). The tank-testing facility was of critical value to the project, as it enabled Incat to cost effectively trial smaller prototypes than would have been impossible under their trial-and-error method on the Derwent River.

In 1984, the Tasmanian government established a department charged with managing the states economic development – the Tasmanian Development Authority (TDA). Unsurprisingly, one of the department's first duties was to aid the expansion of the state's shipbuilding industry through the provision of public funds towards new shipbuilding projects within the state (Fisher, 1984). The major capital provisions were a \$1 million loan guarantee for the construction of a new shipyard at Incat's Sullivan's Cove factory, a secured loan of \$60 000 and bridging finance of \$25 000 for Incat to develop its research and development capabilities (Fisher, 1984). The department also entered into a loan agreement worth some \$500 000 with another marine construction firm (FC Management, then known as 'Bridport Enterprises') to supply a 35-metre steel-hulled vessel to service the needs of the Flinders Island community (The Mercury, 1984).

During 1985, a number of ferry tragedies had occurred in Europe, and Clifford decided to differentiate his product through the incorporation of safety features that exceeded those required by European regulations (Clifford, 1998). The strategy to

differentiate its product along the lines of safety resulted in Incat's first approach to Colbeck & Gunton in 1986 to provide its fire safety expertise in the design and implementation of innovative fire fighting equipment for the Incat range of vessels sold into the European market. Incat had successfully constructed its prototype wave-piercing catamaran earlier in the year, but found it unable to adapt its conventional fire safety equipment to the new lightweight design, a major concern given the increased interest in Incat's product from the United Kingdom. Of its relationship with Incat during this early collaboration, the managing director of Colbeck & Gunton recalls:

There were two vessels that were actually built in '86 that were built as a contract to an English company, to buy them for Southampton to Isle of Wight and that is when we first got a taste of international style fire protection requirements – other than the [Australian] Code. From that [Clifford] developed the first of the fast ferries as we know them today; and the type of fire protection that was available at the time wasn't really conducive with the type of vessel he was building and the type of finishes that he wanted so he basically came and asked to have a specific attribute for the fire protection, i.e.: light weight as possible to get maximum speed, fairly damage resistant, water-proof and it would have to be removable because he wanted to put the services in behind the fire protection. So, we set to in the early days and designed the first system, which has been superseded now, and about to be superseded again by lighter and better/more conducive methods to allow other people to install so it widens our market (Mark Colbeck. Personal Interview, 2002).

This relationship heralded the first cooperative interaction between Incat and the services of a non-marine manufacturer (Colbeck & Gunton were at the time focused on the house and office insulation market) in the formulation and installation of equipment vital to Incat's production. The benefits of the relationship were not one-sided, however, with Colbeck & Gunton able to successfully change its business production focus away from home and office insulation to the now more lucrative marine manufacturing industry:

●ur business was previously involved with house and office insulation services, but with the success of Incat changed into selling fireproofing and some soundproofing in many of [Clifford's] early vessels, which were the vessels built to ply the Derwent River. As his vessels changed in size and complexity, so did his fire protection requirements, and we just grew and grew from there (Mark Colbeck. Personal Interview, 2002).

At around the same time, management at Skeels & Perkins also decided to align its manufacturing operations closely with that of Incat's operations. Skeels & Perkins had previously focused on the manufacture of brass plumbing fittings for households in the business' local area, but given the success of Incat's operations up until 1985, Skeels & Perkins' management decided to focus more closely on the plumbing requirements of Incat's new generation of catamaran. As with Colbeck & Gunton, the decision of the business to align with Incat was not driven by government incentives, but rather that the industry player recognised the potential of the innovative nature that Incat's brought to the industry with its shipbuilding strategies:

[Skeels & Perkins] started off building or manufacturing brass-plumbing fittings for local areas. I started here 20 years ago, and it wasn't long after that that Incat started to make small vessels; we somehow got involved with Incat and the business has grown substantially since. I think it was a decision made by the directors more so – a general business decision. Closer to Incat, we could see a future with Incat, although it was fairly small at that stage. Seemed like a good idea at the time to start expanding and be in this area. We started with about 8 employees at the time, and now we have around 50, all essentially because of shipbuilding. (Anthony LaFevre. Personal Interview, 2002).

As with Colbeck & Gunton, the alignment with Incat resulted in both firms altering their methods of production. For Incat, it was the ability to better design their plumbing and other fittings requirements for their new vessels (Clifford, 1998); and for Skeels & Perkins, the ability to innovate with the new PVC plumbing technology

that had recently been introduced into the global industry. Of the alignment with Incat, the manager of Skeels & Perkins stated that:

Since obviously we got into the shipbuilding part with Incat and supported them for a number of years, but it has actually expanded further than that. We have actually got a lot of our own customers around Australia and overseas which are tied up in the shipbuilding industry also. I guess our main aim now is to obviously continue supporting the local shipbuilding but pursue the overseas contracts as well. I think the reason we are successful with those is probably, or from what we understand, is price obviously, but a lot more with quality and delivery on time (Anthony LaFevre, Personal Interview, 2002).

By the end of 1986, Incat's reputation for innovative design had led to numerous domestic sales of smaller wave-piercing catamarans, as well as larger versions of the same for the United Kingdom. During this year, Incat was presented with a \$6 million order from British Sealink Ferries for a 45-metre carrier for the Portsmouth-Isle of Wight passenger service. The Premier and the TDA positioned themselves at the forefront of the international sale, with negotiations between Incat, the Tasmanian government, and the British Sealink Ferries Company taking some six months to complete. The Tasmanian government's effort appeared worthwhile. The British company's successful operation of an Incat vessel in the European context provided valuable feedback to the international market that enhanced Incat's reputation, and fuelled additional international demand for the company's product (Clifford, 1998; The Examiner, 1985).

Despite the export success, Clifford once again approached the Tasmanian government over his concern that it might not be economically viable for the company to remain in Tasmania. Clifford argued that the company's Hobart waterfront location was no longer capable of supporting Incat's growth potential, and

therefore the state's economic development potential (Delaney, 1987). Highest on the company's agenda was the partial finding of another shed; a requirement for the construction of the larger vessel given that the Sullivan's Cove shed (by now only three years old) was incapable of supporting a structure of this size. As was reported in the Mercury newspaper:

Another month should tell whether innovative Tasmanian boat builder Incat has landed another multi-million dollar ferry deal with British Sealink Ferries. However, a question mark hangs over whether it will be economically viable for the giant vessels to be built in Tasmania, or whether they will have to be built overseas. "It will depend largely on the level of support that we get from Government in setting up the facilities necessary for this type of expansion" Mr. Clifford said. The company would continue to build catamarans in Tasmania up to the size of the 30-metre vessels sold last year, but the cost-effectiveness of building larger ones in Tasmania would have to be reexamined (Togagnolo, 1986).

In order to increase Incat's workforce and accommodate the increased workload, Clifford announced that a government-funded training school needed to be established, preferably at the new Incat factory. The alternative was for the company to act on several offers to move its operations interstate, where qualified labour and state government assistance was more readily available (Fyfe, 1988). Clifford argued that it would only be with more trained tradesmen that the company could continue to expand at its current rate. The news of the new multi-million dollar order from Britain meant that Clifford was in a strong position to negotiate for government's involvement with the construction of a new training centre.

The Tasmanian government's response to Clifford's request was to partially find Incat's new manufacturing sheds at Sullivan's Cove (which would include a new dry dock and a dedicated catamaran assembly line), as well as incorporate a college of aluminium welding from which workers could gain TAFE certification of their skills.

In addition, the Tasmanian government also provided Clifford in-principle support for the implementation of a fast catamaran service between Tasmania's northern port of Devonport, and the Australian mainland port of Melbourne. Construction of the new Incat shipyard began almost immediately, given the status of the potential orders from the UK, and the new yard was ready by the end of 1987. In addition to this relocation effort were public funds to incorporate the TAFE Aluminium Welding School on Incat's premises, as well as funding to locate Incat's most important suppliers to adjacent premises; a plan that met with some enthusiasm by those firms that relocated over time:

●originally when we first started the business [Colbeck and Gunton] we worked out of my house – we had a workshop underneath. We then moved out to South Hobart where we shared a factory, we then moved to Pearl Street when we first started with Incat and then this building as soon as it was available to us. It was an ideal location, especially when they were building the vessels straight across the road, but we have been here since about '92 (Mark Colbeck. Personal Interview, 2002).

We built the first life raft in a sail making lot, which was my previous business, a sail making lot in Battery Point. Then we moved, we outgrew that virtually overnight and we moved to a government department owned facility in Hunter Street, just at the wharf area. That was originally set up by the Department of Fisheries to hang nets, so we moved in there for about a year and then again we were bursting at the seams in there. We probably could have stayed there a bit longer but it just didn't have the space. However, Incat's move to Prince of Wales Bay opened up an opportunity to move to a new marine park – which allowed us to continue to manufacture and innovate our life raft systems at an extreme pace. Again, it is a central location and it had the space to allow us to control what we were doing (Michael Grainger. Personal Interview, 2002).

The Tasmanian government's assistance to Incat was viewed in hindsight as critical to the industry's development, given the short-term flow-on benefits of the company's operations to the states economy. For example, in order to fulfil its export orders, Incat acquired some 500 tonnes of aluminium from Comalco (a Tasmanian based enterprise); it increased its demand for indirect employees in the form of sub-



contractors; and ensured that the company's vessels were fitted out with products manufactured by associated Tasmanian firms such as Colbeck & Gunton, Skeel's & Perkins, and Muir Engineering (Clifford, 1998; The Examiner, 1988). Colbeck & Gunton continued to adapt their insulation products to suit Incat's specific requirement, as did Skeel's & Perkins with their precision components and Muir Engineering with their winches and anchorage systems.

Elsewhere in the industry, the Tasmanian government indicated its intent to facilitate the expansion of the state's entire shipbuilding industry by attracting established interstate shipbuilders to the state to manage its under-performing shipbuilding assets. In particular, the TDA played a key role in bringing a major company, the Queensland Sea Management Corporation, to Tasmania to undertake its operations by buying out the struggling Tamar Steel Company. The TDA's general manager Robert Brand stated that negotiations on the matter had started earlier in the year between the TDA and the Queensland Sea Management Corporation, a successful interstate company seeking to expand its business nationally (The Sunday Tasmanian, 1988).

In 1988, Australia's bicentenary year, the AMC hosted a series of three international seminars and workshops opened by the Secretary General of the United Nations, Mr. Javier Perez de Cuellar. The series, entitled 'Maritime '88', attracted delegates from all parts of the world, and focused the attention of the world onto Tasmania's newly found prominence in the fast-ferry construction industry (The Advocate, 1988). This prominence was evident by a growing number of orders for Incat's fast-ferry production, the most substantial of which were again ordered by a European firm, this time 'British Sea Containers'. Their order, for two 71-metre vessels, resulted in Incat

unveiling plans to increase their directly employed workforce from 40 employees to around 150 over the next year (The Examiner, 1988). The increase in demand for Incat ferries was coupled with similar growth in demand for the products from Incat's supply firms, with Muir Engineering, Riley Industrial, and Skeels & Perkins receiving their international orders for their range of newly designed products.

The election of the Field minority Labor government in June 1989 was accompanied by a continued effort by the government to improve the management systems and the reputation of the state's shipbuilding industry, although the new government was to find itself hamstrung by the legacy of government debt. One of the Field government's first major policy launches was that of the Tasmanian Marine Industry Plan (TMIP), a policy aimed at promoting the TLSI (and supporting industries) within what was soon recognised as a major financial crisis for the state:

...in 1989, when we did the budget projections for the following year, the gap between income and expenditure on delivering on the same policy basis was \$279 million which at that time was nearly 30% of the current budget. So, this was a huge gap between expenditure and income which had to be dealt with and therefore that distracted me – it meant the thinking in this area wasn't done enough by me because of my obsession quite rightly with dealing with that crisis (Michael Field. Personal Interview, 2002).

The Tasmanian government, through the TDA however, continued in its efforts to develop the states shipbuilding industry throughout 1989. Of most significance was the announcement that the Tasmanian government had designed the TMIP, and that through this plan, the government would inject \$10 million of public funds to provide impetus for the industry's growth potential (Field, 1989). The TMIP formed part of the government's employment summit for that year, and aimed at creating upward of 350 new jobs within the state's shipbuilding industry over a three-year period. The funding was also to be utilised to offer flexible financial packages that may include

extended loan repayment terms, initial interest-only periods, and concessional interest rates to shipbuilding firms (Field, 1989). The package was implemented for, what the government called at the time, recognition that Tasmania enjoyed a growing international reputation for new and innovative ship and boat building designs, and the government, through the TDA, was determined to harness the potential for further growth.

Field (1989: 2) added that “the TMIP recognised that to be viable today, companies engaged in ship and boat building (and the associated industries) needed to have a national and international perspective, and develop their operations accordingly”, and that companies seeking assistance under the Plan would need to be committed to the growth of the marine industry in Tasmania. They would also need to display innovation in design, marketing, and production, want to work with marine academic and research organisations in the state and adopt appropriate capital investment programs.

The TMIP also had the aim of building on Tasmania’s already substantial reputation as a marine manufacturing centre. Of the plan, Mr. Field stated “We have been building boats in Tasmania in a regular and conventional way since 1814. As we seek to establish a solid economic base for the 21<sup>st</sup> century, nothing is more logical than to expand our marine industry” (1989: 2). In addition, Premier Field suggested that:

Thanks to the expertise and national/international back-up provided by major companies, these Tasmanian organisations are providing the types of jobs, training and long-term prospects the state must have if it is to generate more of its own momentum (Field, 1989: 2).

Another important event to occur in 1989 was the establishment of Richardson Devine Marine, one of the current TLSI cluster firms. Richardson Devine Marine began its operations on the Hobart waterfront and specialised in the production of aluminium passenger and cruise/charter vessels, although to a smaller specification than that of Incat (i.e. vessels between twelve and 40 metres in length). In addition, the new firm limited its construction to the specific requirements of the customer orders, unlike Incat who had begun to build their vessels from their own specifications, and then later adapting the vessels where needed.

The TDA's efforts to expand the state's shipbuilding industry were again evident, when it announced that a Tasmanian shipbuilding company had won a \$4.8 million federal government contract to convert the CSIRO technological research vessel the *Southern Surveyor* into a fisheries research ship (The Examiner, 1989). The company that tendered successfully for the contract was the newly launched 'Launceston Marine' company, a joint venture between the Queensland based Sea Management Corporation (in their role managing Tamar Steel Boats) and the Port of Launceston Authority. This was considered a win for the TDA's management of the state's shipbuilding industry's expansion, as the Tamar Steel Company was struggling for economic survival just one year earlier.

In 1990, it was announced that the AMC would introduce a new degree course in naval architecture beginning the following year, and that this would give strong support to Tasmania's shipbuilding industry, and help put Tasmania 'firmly on the map' as a centre of shipbuilding expertise (The Examiner, 1990). The head of the AMC, Mr. Seaton said that the accreditation recognised the states innovative industry-

base, along with the AMC's world-class facilities and staff expertise. He further noted that the states major shipbuilders had expressed concern over having to import people from interstate and overseas to support their enterprises, and that the introduction of this course locally should alleviate the issue. Mr. Seaton stated, "this will give graduates reciprocal recognition in countries such as NZ, Canada, the US and Britain, and will increase the scope of graduates to work overseas", and the next step was to "ensure that the degree was recognised as a professional qualification by the Institute of Engineers of Australia" (The Examiner, 1990: 5).

At the same time, Clifford indicated that he had once again received offers from interstate interests to relocate his business. Offers were forthcoming from both the Cairns Council (of Queensland) and the Gosford Council (of New South Wales). On the matter of the offers, Clifford indicated that he was considering them as they provided a real opportunity for cost reductions and sales growth, although his preference was to remain in Tasmania. Coincidentally, 1990 witnessed the Tasmanian government provide a grant to Incat, worth some \$1 million, to develop a new state-of-the-art factory at its Prince of Wales Bay site. This new factory was 'required' by Incat in order to develop and build its latest generation of fast ferries. The grant was also provided so that Incat could establish a college of aluminium welding as part of its new factory, effectively giving the company full control over its course work and production output (Wickham & Hanson, 2002). In keeping with the increased focus on improving employee training and development, in 1991, Incat introduced a number of government-subsidised scholarships for engineering doctorates for its staff at the University of Tasmania. These scholarships coincided with Incat's initial foray into yet another generation of fast ferry, this time

incorporating cargo transportation alongside its traditional focus on people and car transport (Wickham & Hanson, 2002).

During 1992, another of the TLSI cluster firms, Liferaft Systems Australia, was formally established at the Prince of Wales Bay marine park. Liferaft Systems Australia specialises in the construction and fit-out of evacuation slides and inflatable life rafts for the marine manufacturing sector. The company located itself on Prince of Wales Bay in an adjacent site to that of Incat, and was contracted immediately by Incat to fit-out its latest generation of fast ferry. The demand for state-of-the-art safety equipment had recently been highlighted by a further series of tragedies in the European market, where a number of ferries (not Incat models) had sunk and/or caught fire when in service. By mid-1993, Incat, Colbeck & Gunton, Muir Engineering, Riley Industrial, Skeels & Perkins, and the newly formed Liferaft Systems arranged their operation such that they were able to work closely together on the construction and fit-out of Incat's newest generation of vessels (Wickham & Hanson, 2002). The successful interaction of the firms at the Prince of Wales Bay marine park was formally recognised by the newly elected Groom Liberal government early in 1994, when it bestowed upon Incat an official award for export services to the state.

In mid-1995, Clifford once again indicated that Incat would consider leaving the state if the Tasmanian government failed to continue its financial support. Although Clifford indicated that his preference was to stay within Tasmania, transferring to an interstate location was a realistic possibility unless the Tasmanian government increased its commitment to the training schemes already in place (The Mercury,

1995a). In particular, this request was aimed at the Tasmanian government matching the \$1 million federal training grant it received the previous year (The Mercury, 1995b). Pressure was also applied by the Tasmanian Chamber of Commerce and Industry, whose spokesman, Mr. Tim Abey, urged the Tasmanian government to work out ways of solving Incat's chronic shortage of skilled workers.

Further political focus was applied when the leader of the state Labor opposition party, Michael Field, said that he would hold talks with Clifford to discuss what could be done to keep the company's expansion within the state. Mr. Field said that the lack of understanding about Tasmanian industry in general, highlighted by the Incat issue, indicated a need for a total industry audit process to be adopted (The Mercury, 1996). The Tasmanian government, after numerous meeting with Incat and the Tasmanian Chamber of Commerce and Industry, agreed to the increase in financial commitment to the training requirements of the industry to match that granted by the federal government.

Despite the increased commitment offered by the Tasmanian government in 1996, Incat indicated that it would begin licensing out construction of its vessels to a Chinese-based company (Wickham & Hanson, 2002). However, Incat's management said that there was no suggestion that the deal would cut the size of his Tasmanian operation at the Prince of Wales Bay site, stating, "we have plans to increase production in Hobart from four to six vessels a year, but we need to expand overseas for a number of reasons" One of the major reason cited was the widely debated move by the federal government to dismantle the shipbuilding bounty rebate scheme. Clifford stated "the unlevel playing field created by the federal government, which is

removing the shipbuilding bounty in 1997, is seen as one contributing factor in choosing a non-Australian site” (Briggs, 1996: 2). Clifford suggested that the axing of the bounty in mid-1997, combined with a shortage of skilled labour in Tasmania, was likely to see a continuing trend towards overseas production of Incat vessels.

Incat’s call for greater assistance in training the company’s potential labour pool were answered late in 1996, when the Tasmanian government announced that a new \$8 million training complex for high-speed catamaran builder Incat was to be built (The Mercury, 1996). Premier Rundle stated that tenders had been called for the construction of the new training centre, which would be run by the Hobart Institute of TAFE, and constructed adjacent to the Incat factory site (The Mercury, 1996). In announcing the government’s grant, Premier Rundle stated that the current training centre located at Incat was inadequate to accommodate the industry’s needs. The new training centre, to be named the College of Aluminium Training, was to include a greater training workspace, modernised equipment, and a greater and more experienced number of staff. Premier Rundle defended the government’s pledge of \$8 million, stating, “Incat is an expanding enterprise which provides substantial opportunity for employment and export earning growth for Tasmania, and inadequate access to appropriately skilled labour has constrained the company from expanding its operations” (The Mercury, 1996: 4).

The Tasmanian government also provided Incat with non-financial assistance in the form of the lobbying the federal government to maintain the Shipbuilding Bounty rebate, which was estimated to be worth some \$3 million to Tasmania’s industry annually (Wickham & Hanson, 2002). Although the Tasmanian government was



unable to guarantee the Bounty scheme's continued support to the industry, early negotiations did lead the federal government ministry to seriously reconsider its decision to remove it immediately (The Advocate, 1996). In December of 1996, the Tasmanian government announced that it was the decision of Federal Treasurer, Mr. Peter Costello and the Minister for Industry, Science and Tourism, Mr. John Moore, to extend the operation of the shipbuilding bounty in its current form until the end of the following year (Rundle, 1996). The federal government also accommodated the State's shipbuilding industry by amalgamating the AMC and the Australian Maritime Engineering to create a Cooperative Research Centre, a body responsible for sponsoring and coordinating research into super-fast aluminium catamaran construction (Peattie, 1996). The creation of the Centre followed a survey of the national industry's priorities, namely improved training and access to research and development grants, that were released in a shipping partnership report by federal Industry, Science, and Tourism minister (Peattie, 1996).

Although the Shipbuilding Bounty had been secured for one additional year, the Tasmanian shipbuilding industry continued in its efforts to maintain the subsidy beyond that time through the continued lobbying of the Tasmanian government. In 1997, moves within the federal senate to save assistance for shipbuilders linked to hundreds of Tasmanian jobs were made by the five Tasmanian Senators (The Mercury, 1997a). The main argument for the retention of the subsidy scheme was that of maintaining 'fair and just' international competition. Tasmanian politicians, acting on behalf of their industry, sought to retain the shipbuilding bounty at least until other major shipbuilding countries (i.e. competitors) agreed to remove theirs,

else have the Tasmanian (and Australian) industries operating at a significant competitive disadvantage.

Tasmanian Senator Mrs. Sue Mackay specifically called upon the senate to 'save Incat', and the hundreds of jobs that 'at risk' if the Bounty rebate were to be removed (The Mercury, 1997a). Incat chief Clifford made his opinion known in an open letter to the senate, stating, "if the bounty was not extended, 200 jobs would be at risk" (The Examiner, 1997: 2), and sought a three-year extension to secure the future of his company, and those that were associated with it. Once again, the lobbying was effective, and the Shipbuilding Bounty was retained by the federal government, although it was altered to reflect the assistance Australia's major competitors received under similar legislation elsewhere. Soon after the announcement was made publicly, Incat's management announced that it would boost its workforce by 400 people over the next two years, and would expand the company's Hobart-based operation to incorporate the expected increases in demand (Primsall, 1997).

The Tasmanian government also released plans in 1997 to partially fund the construction of a 'world-class marine precinct' in the states northern City of Launceston. The rationale for the new marine complex was to attract new, but smaller-scale shipbuilding and maintenance firms to Tasmania, in order to diversify the states industry, and to generate new jobs within the state (Rundle, 1997a). Rundle (1997a: 2) stated, "The move will offer marine industry customers a comprehensive range of services", and would cost the government \$1.2 million in addition to the on-going expenditure on improving infrastructure and marketing the site's capabilities, particularly to shipping operators and builders in the Asia Pacific state.

In a similar move, the Hobart Ports Corporation, in conjunction with businessperson John Fuglsang, applied to the Kingborough Council for approval to establish an export-oriented marine industry park at Margate, a small suburb south of Hobart (Rundle, 1997b). The marine park was to be part owned by the Tasmanian government, who would finance the \$6 million start-up costs involved with the project, as well as legislate to rezone the land such that it could be fast-tracked through the political system. The application included a request for a 17-hectare site already owned by the Hobart Ports Corporation, as well as permission to construct three separate shipyards capable of producing fishing vessels, luxury motor yachts, fast passenger ferries. In addition to the core business of shipbuilding and repair, the proposed Margate Maritime Industrial Park was to include a launching dock, a marina and related facilities, recreational amenities for employees and nearby residents, fish farm servicing facilities and a ships chandler. The rationale for the application included the prospect that 200 additional jobs would be generated in the state immediately upon approval, with a potential of up to one thousand over a ten-year period (Rundle, 1997b). In addition, the groups suggested that the range of vessels produced at the Margate site would complement Incat's much larger ferries and therefore help to consolidate Tasmania's position as a pacesetter in modern shipbuilding, as well as create an additional stream of business for many of the small suppliers that have grown up as one-customer businesses around the Incat hub (Rundle, 1997b).

As if suspecting complaints about the Margate marine park proposal, the Tasmanian Transport Minister urged all residents of Southern Tasmania to support the development of a shipbuilding facility at Margate. In support of the plan, a government minister stated that:

Rather than looking for problems and ways to prevent the proposal, all people in Southern Tasmania should get behind the development and support it. Tasmania has already developed an international reputation as a leader in boat building technology and development, thanks to the initiative of Clifford at Incat. There is now an opportunity to further develop boat building in this state (Cleary, 1997: 1).

Further efforts at developing the state's shipbuilding industry were evident in late 1997, when a charter agreement between the Tasmanian government and Incat for its Bass Strait passenger service was confirmed for the following summer (The Mercury, 1997b). The agreement included a five-month lease of an Incat vessel for the transportation of tourists and cargo that would complement the existing overnight service.

In 1998, the Tasmanian Maritime Network (TMN) was officially formed to recognise the synergistic strength of the states shipbuilding and associated industries (Napier, 1998). The aim of the Maritime Network was to primarily market member's products and services to the world, and indicate to the market that Tasmania has the innovative services and products for manufacturing an array of ships and related maritime products and services (Napier, 1998). The network itself was centered at the newly constructed TAFE Tasmania College of Aluminium Training at the Incat site, and although requested by the government was "an initiative of the firms involved, and includes companies that have an excellent reputation both within Australia and internationally for their respective services" (Napier, 1998: 1). The Maritime

Network members at the time were Incat, Richardson Devine Marine, Colbeck & Gunton, Muir Engineering, Liferaft Systems, Riley Industrial; Skeels & Perkins, TAFE Tasmania, and the AMC.

Initially, the formation of the TMN was based on the TLSI cluster firm's recognition that a formally structured arrangement between the industry players was an economically beneficial strategy, especially in terms of cost reduction and improved communications and marketing coordination. The instigators of the TMN said of the arrangement that:

I had just been visiting some shipbuilding ventures overseas, and had received some useful feedback from potential customers over there. So, when I got back to Hobart I thought it would be a good idea to set up some form of network so that I knew what the other industries did when I went away or I sent something away to publicise their capability – especially those that have been working with fast ferries. So, I went around every managing director of the companies that I knew were involved in this sort of work and put the idea to them that we form a network so that if any of us go overseas that we can transfer that and they were very anxious. Out of that grew the Tasmanian Maritime Network and TAFE being government naturally they copped the job of setting it up and naturally the poor old teachers found another little task they had to do on top of what they did (Terry Hall. Personal Interview, 2002).

No, we knew about it. I have had some involvement with various government departments I suppose, and we also set up a Tasmanian Manufacturing Network, which has been a success story on its own, and that particular network was born out of local marine related businesses in this immediate area. Travelling a lot overseas and meeting up at trade shows overseas and sometimes we would meet overseas and we haven't seen each other in Hobart for three or four months, but we would meet in London or other parts of the world, attending a trade fare, and we sort of got together one day and said, "Why don't we form a network so we can push all of our product, experience and promote our product and experience, and technology. Our industry is world class, we all know it is world class but we don't do a very good job of selling it." (Michael Granger. Personal Interview, 2002).

Interestingly, the TMN was not established by the TLSI cluster firms for their own benefit exclusively. At its inception, the coordinators of the burgeoning TMN undertook the responsibility to invite all of the state's shipbuilders and marine manufacturers to take part in the initiative. As noted by its director:

What we did was brought every managing director of every company that was involved in manufacture and export of maritime products in Tasmania. At that stage we didn't care whether they were Launceston, St. Helens, anywhere that they wanted to be. So, we put it out, as widespread as we could, who would like to be involved, everybody that was approached joined, which is still an ongoing programme. They sit around this table, which is in the training school, have their meetings so we have got every managing director talking to one another, knowing what is going on and where the markets could be and all those sorts of things. The good part of that is, we can waltz up to anybody in the network and sit down and have a chat (Terry Hall. Personal Interview, 2002).

The recruitment process was successful in attracting the majority of the state's economy's shipbuilders and marine manufacturers, which gave rise to a politically powerful group of firms. Indeed, one of the TMN's most important selling points was the opportunity for smaller firms within the state's economy to align itself more closely with the TLSI cluster firms, most notably Incat:

We found that there is 85 percent of the marine industry, export industry, in the network. So, if the marine industry needs to approach the government they have got 85 percent of the weight behind them. If we want to lobby for support for attending trade expos or anything like that, it might need some additional funding from the government, we can ask the network, rather than as an individual which we have done in the last four years, we have attended a couple of these trade expos which have been very successful and very well set up by the Tasmanian government and the [Tasmanian Maritime] Network does congratulate them for what they have done (Terry Hall. Personal Interview, 2002).

It is important to note that the establishment of the TMN was instigated by the private firms within the TLSI cluster, and not by the Tasmanian government's representatives or departments. The Tasmanian Maritime Network (TMN) utilised its political power, however, to recruit the Tasmanian government, or more correctly its economic development arm - the TDA, as an important member of the network. The TDA's involvement in the TMN was to provide competencies that facilitated the realisation of the synergies within the network, but which were beyond the scope of the individual firms within the network to provide. These competencies centred largely on the generation of a consistent and internationally effective marketing and communications campaign, and the ability to lobby important federal ministers and agencies on the TMN's behalf. Another significant announcement was made in 1998 concerned the success of the application for the approval of the \$6 million Margate Maritime Park. Shortly after the announcement, the last of the current TLSI cluster members was established. Mr. Fuglsang, the businessperson involved in the Margate Marine Park application, won a \$4.4 million grant for his company's (North West Bay Ships - NWBS) plan to design and build the first aluminium trimaran ferry (The Mercury, 1998).

A number of Tasmanian government departments were also created or renamed during the course of 1998. Of particular note was the change to the Tasmanian Development Authority, which changed its name to the Department of State Development (the DSD). The name change coincided with the department's increased focus on the training and development of the Tasmanian workforce. In particular, the restructuring of the TDA included the creation of the DSD Skills Response Unit, charged with the identification of skill-shortfalls within the state. One

of the DSD's first functions was to undertake a series of Industry Audits within the state to identify the states key export earners, their infrastructural needs, and any potential barrier to their growth in the future. Federally, Austrade was established to facilitate Australian exporting firms. Initially, the department was charged with providing information pertaining to all aspects of international trade (i.e. Australian law, international law, cultural aspects of trading etc), and to provide a link to other government departments where necessary.

The first stage in the construction of the Margate Marine Park began in early 1999, and included the construction of NWBS's \$18 million facility to build its prototype trimaran fast ferry. NWBS's managing director, Mr. John Fuglsang, stated that the main reason for his choice to locate the company in Tasmania was the opportunity to build on the very strong local infrastructure and skills base developed by the Tasmanian government's interaction with Incat Tasmania over the past twenty years (Fuglsang, 1999). Mr. Fuglsang stated that the conceptual work on the company's innovative trimaran commenced two years previously, and culminated in NWBS being awarded an R&D grant from the Commonwealth government's Department of Industry Science and Tourism. He also acknowledged, however, the positive aspects of the involvement in the project of the tiers of Tasmanian government, whom he recognised had all been very supportive and demonstrated an ability to work cooperatively with industry (Fuglsang, 1999). The Tasmanian government in particular provided equity funding to support the states newest shipbuilder, pouring \$800 000 of public money into the new venture, money that was "critical to the project going ahead at all" (Bacon, 1999a: 1).



The Premier, Jim Bacon, defended the equity partnership in NWBS by stating that the deal was consistent with Labor's election commitment to set aside \$10 million over the term of the government to the states export industries (Bacon, 1999a). In particular, the Premier stated, "The new venture dovetails perfectly with Incat, even to the extent of utilising the aluminium training school at Prince of Wales Bay to train its workforce" (Bacon, 1999a: 2). The Tasmanian government also entered into a financial deal with Incat in the form of state-tax relief, and in particular, a reduction in its Payroll Tax liability. Premier Bacon defended this course of action as 'appropriate', given that it remedied one of the Industry Audit findings that growth in Tasmania's shipbuilding industry was inhibited by the lack of skilled labour affordable by Incat (The Examiner, 1999a).

In order to legitimate the payroll tax decision for Incat, the Premier stated that the company was only one among sixteen firms that qualified for, and would receive, the tax relief available under the Industry Audit recommendations. Incat were also successful in their contractual negotiations with two levels of government. Federally, Incat were successful in their bid to negotiate an agreement with Australian Defence Force, securing a contract that included a two-year trial of an Incat vessel for defence exercises and other related defence activities in Northern Australia (Bailey, 1999). The successful application of an Incat vessel to defense applications would enable the company to further diversify its product portfolio. At a state level, Incat secured a further commitment from the Tasmanian government to maintain its Devil Cat Bass Strait passenger service over the following summer, despite its operating losses of \$3 million for the previous summer (The Examiner, 1999b). In addition to this production support, the Tasmanian government also launched a 'performance

guarantee' to international buyers of the TLSI cluster's product. In essence, the Tasmanian government's guarantee ensured the purchaser of a TLSI cluster product that the price quoted to them would stand, and any unforeseen cost 'blow-outs' would be paid on their behalf by the Tasmanian government (The Mercury, 1999).

The support for Incat and its supporting firms seemed reasonable when the results of its performance over the past three years were announced publicly in mid-year. By the end of the financial year 1999, the TLSI cluster recorded the most "spectacular growth of any sector in the state's economy" (Daley, 1999: 4). On average, it was reported that the businesses in the TLSI cluster (by this stage officially recognised by the Tasmanian government) grew by 60 percent, the highest growth by an individual firms was in excess of 200 percent (Daley, 1999). In dollar terms, the TLSI cluster's performance over the previous decade was similarly impressive, with turnover increasing from \$38 million in 1989 to \$260 million in 1999 (Bacon, 1999b).

It was announced late in 1999 that the DSD, under the guidance of Premier Jim Bacon, was to coordinate the State's shipbuilding industry's entry into the largest maritime and naval trade shows ever to be staged in the Asia-Pacific State, entitled 'Pacific 2000'. Premier Bacon said of the Tasmanian shipbuilding entry that "This is one of the brightest success stories in Australian manufacturing and the companies involved will take a dazzling array of Tasmanian technology to the Pacific 2000 exhibition" (Bacon, 1999b: 1). The DSD, in conjunction with each of the sixteen firms involved, coordinated the uniforms, signage, literature, and a percentage of the associated costs involved in attending the trade show, a role that was beyond the individual expertise of the firms involved (Bacon, 1999b).

By 2000, the Margate Marine Park's first industry resident, NWBS, had begun production of its first generation of vessels. The prototype trimaran was one of the first ships to be completed by NWBS, and its launch was attended by the state Premier. Of the launch, Premier Bacon said, "There is still a way to go, but the emergence in the near future of another world-class aluminium ferry would contribute to Tasmania's shipbuilding reputation and increase the critical mass of the local industry" (Bacon, 2000: 1). Premier Bacon added that the \$20 million trimaran was an impressive example of Tasmania's commitment to innovation (Bacon, 2000). The Premier again praised the company in 2001, stating at the launch of a 55-metre ferry that the state may be witnessing the emergence of another world-class manufacturer of large-scale aluminium ferries (Bacon, 2000).

In 2000, after intense lobbying by the Tasmanian government, the federal government retained the Shipbuilding Bounty, worth about \$35 million in rebates to Incat alone. The Tasmanian government also implemented further payroll tax relief for Incat in response to the slump in demand for its vessels, a slump that was blamed on the world economic recession that had emerged during the year. Of greatest concern to Incat was the failure of several European ferry service operators, whose liquidation resulted in several 'new second-hand' vessels entering its market at significantly reduced prices – an eventuality that would have severe ramifications some 18 months later (Wickham & Hanson, 2002).

In 2001, the Tasmanian government contributed \$421 000 towards the purchase of a \$1 million, state-of-the-art Model Test Basin for the AMC, a purchase that helped position the training facility as the country's leading maritime research institute

(Bacon, 2001a). Premier Bacon said of the investment that the Tasmanian government pledged the cash in 1999 amid fears that the AMC's market edge could be lost if it didn't acquire a test basin before its competitors. Of the strategic importance of the investment, Premier Bacon commented that:

The investment has certainly deterred other states from attempting to steal business away from the AMC and Tasmania. In fact, since late 1999, the AMC's newly established courses in Naval Architecture and Ocean Engineering have had significant growth in student numbers. As well as its educational function, the AMC has an enviable maritime research reputation, which will also be enhanced by the commissioning of the Model Test Basin (2001b: 2).

Although the Tasmanian government's investment in training infrastructure was viewed as a positive use of public funding, the state's leading shipbuilder, Incat, had experienced significant cash flow problems due to significantly reduced sales that resulted from the world economic recession of 2001, and the requisite large capital investment tied up in unsold vessels (Wickham & Hanson, 2002). In order to help Incat through this period, the Tasmanian government canvassed the option of buying a vessel from the troubled shipbuilder to replace the Devil Cat on the Bass Strait route (McLaren, 2001). Premier Bacon said that buying an Incat's vessel was one of a number of options the Tasmanian government was looking at, and that "The senior executives of the DSD have had a number of discussions and meetings with Incat, as well as with a series of other parties about potential sales of Incat vessels" (Bacon, 2001b: 2). Incat, however, were facing issues other than just a downturn in sales. In mid-2001, Incat workers voted to stop work in protest of 'poor pay conditions despite the company reporting profits in excess of \$25 million' (The Mercury, 2001). To compound the problems faced by Incat's management, there were warnings from the company's bank that it might soon foreclose on its loan to Incat, and send in temporary receiver-managers to more closely monitor the firm's cash flow.

Other members of the TLSI cluster, however, had become proficient in securing their own export sales by the end of 2001. In particular, Richardson Devine Marine (RDM) was publicly congratulated by the state Premier on securing a contract to build a \$3.1 million passenger vessel for an Italian operator. Of the sale, Premier Bacon stated:

This is the first RDM vessel to be sold into Europe and will demonstrate to the Europeans that Tasmania has world-class capabilities in the building of fast-ferries. RDM has shown its innovation, determination to produce high quality ferries, and this has been clearly demonstrated with the fleet of vessels it has produced for the Gordon River (Bacon, 2001c: 1).

Premier Jim Bacon also suggested that the contract reinforced Tasmania's international reputation for being able to build a number of different vessels, not just large ships such as those built by Incat (Bacon, 2001c). The General Manager of RDM, Mr. Toby Richardson, said in response to the Premier's praise that, "RDM would like to take this opportunity to extend its appreciation to the Tasmanian government for supporting our company, and specifically thank the Export Facilitation Arm of the Department of State Development" (Bacon, 2001c: 2). Another of the cluster's firms, Liferaft Systems, had also received orders from international buyers impressed with the innovative nature of their Marine Evacuation System, a system included on the last generation of Incat vessel. In particular, the company received enquiries concerning custom-made systems for extreme temperature conditions, such as those experienced in Arctic exploration, from which the company explored innovative design features and components to suit.

In 2002, after Incat had sold its first vessel in over a year, it was revealed that the Tasmanian government had lent Incat \$30 million of public funds to alleviate its 'negative cash flow' problems (Paine, 2002). Premier Bacon confirmed that the

Tasmanian government made a fully secured \$30 million loan to Incat in July of 2001, stating that, "It is no secret that recently Incat has endured cash-flow problems, alleviated by the sale of a vessel, and I congratulate Clifford on his company's recent success" (Paine, 2002: 2). The loan was justified by the Tasmanian government as protecting some 800 jobs directly associated with the firm's operations, and that the Tasmanian government had the first claim on Incat's assets in the event that the company failed (Paine, 2002). Despite the Tasmanian government's commitment to secure Incat's future through secured loans, it did not extend to the continuation of the Incat fast-ferry service across Bass Strait, a service that was problematic and had failed to make a profit since its introduction. The Tasmanian government cited an independent study commissioned by the Tourism Council of Tasmania that found that growth in Tourism demand would be best served by two mono-hulls rather than one catamaran (Haley, 2002).

In 2002 the decision was implemented, and two mono-hull vessels purchased from Europe were commissioned to service the Bass Strait route. Incat's immediate response to this decision was to suspend the employment of all 89 of its apprentice workforce without warning or pay. Incat's management justified the action stating that there simply wasn't enough work to be done to maintain the current level of workers (Haley, 2002). The Tasmanian government's response to the action was to send a delegation of ministers and industry representatives to Canberra to seek Federal government assistance for the troubled company. In the meeting, Premier Bacon said that the short-term survival of Incat had reached a critical juncture, and that to help save the company, the Federal government needed to purchase or lease vessels in the near future (Haley, 2002). Premier Bacon also warned that Incat faced

at least a temporary shutdown without the implementation of a rescue package, a result that would have significant flow on effects to other TLSI cluster firms as well as to the international reputation of Australia's shipbuilding industry (Barbeliuk, 2002).

Despite the delegation's efforts to secure federal assistance, the federal government rejected a plea for help for the ailing Incat (Bailey, 2002). The federal government's Industry Minister, Mr. Ian Macfarlane said of the decision, "The federal government has already played a significant role in supporting Incat, and through bounties contributed almost \$90 million to the company" (Bailey, 2002: 2). Shortly after the federal government's decision was announced, Incat undertook measure to reduce its workforce by 60 percent (or some 400 directly employed individuals), but this wasn't enough to prevent it being placed into receivership management by the National Australia bank just one week later (The Saturday Mercury, 2002).

Despite the predicament faced by Incat, the remaining TLSI cluster firms remained viable and ongoing businesses at the end of 2002. Their status as such has been largely attributed to their diversification of product lines, their individual success in securing international markets, and the fact that the states industry had evolved away from a hub-and-spoke network of supplier firms reliant on the international success of just the one firm – International Catamarans.

#### **4.4 CHAPTER SUMMARY.**

This chapter provided a brief account of the interaction between Australia's shipbuilding industry and the government's policy regime (since European settlement) within which the TLSI cluster was to eventually emerge. It then included a detailed account of the critical incidents that surrounded the international success of Incat and the subsequent emergence of the TLSI cluster between 1975 and 2002. This historical overview serves as context for the analysis and discussion in the following chapters. In order to remain consistent with the research recommendations of Audretsch and Feldman (1996), Peters and Hood (2000), and Walcott (1999), the analysis of the case history and the primary data gathered for this research occurs in four subsequent chapters, each representing a stage of the TLSI cluster's life cycle. Using dates associated with critical incidents, sales revenues, and technological advancements, the analysis will segment the TLSI cluster's industrial life cycle into an 'introductory stage' (Chapter Six, representing the years 1977 – 1984), a 'growth stage' (Chapter Seven, representing 1985-1998), and a 'maturity stage' (Chapter Eight, representing 1999-present). The following chapter, Chapter Five, will provide an overview of Porter's (1990) diamond factors as they related to the Tasmanian shipbuilding industry in 1977, the year that the hub-firm International Catamarans was established.



## **CHAPTER FIVE.**

### **ANALYSIS OF THE CASE STUDY: AN OVERVIEW OF PORTER'S (1990) DIAMOND FACTORS AS THEY PERTAINED TO THE TASMANIAN SHIPBUILDING INDUSTRY IN 1977.**

#### **5.1 OBJECTIVES OF THE CHAPTER.**

The objectives of this chapter are two-fold. Firstly, it provides an overview of the role that chance played in the formation of the TLSI cluster's hub-firm International Catamarans. Secondly, using the primary interview data gathered during the research process, the chapter discusses the status of Porter's diamond factors as they pertained to Tasmania's shipbuilding industry in 1977. As such, this chapter provides a summary of the general economic conditions to be developed by the Tasmanian state government over the TLSI cluster's life cycle.

#### **5.2 THE TASMANIAN LIGHT SHIPBUILDING INDUSTRY AND THE ROLE OF CHANCE.**

The partial destruction of the Tasman Bridge in 1975 served as perhaps the most important chance event surrounding the formation of the TLSI cluster's hub-firm International Catamarans. The tragic event served to dramatically increase the importance of Robert Clifford's ferry service in the state's south. Due to the dramatic increase in demand for the monopolised ferry service, Clifford's business was able to generate substantial profits during the three years of the Tasman Bridge's reconstruction (Wickham & Hanson, 2001). These profits were reinvested by Clifford into the design and production of new ferries for the trans-Derwent passenger

service. As noted in Chapter Four, to improve customer service and increase the firm's revenues in the short term (i.e. before his own ferries were completed) Clifford hired a British-built fast ferry, the *Michael Howe* to compliment his passenger service. The flaws that Clifford observed in the *Michael Howe's* design and structure caught his attention (it was responsible for 75 percent of the business' maintenance costs) and ignited his innovative flair: "If the English can sell 34 heaps of rubbish like this [around the world], how many properly engineered fast ships could we sell from Tasmania?" (Clifford, 1998: 22).

### **5.3 THE TASMANIAN SHIPBUILDING INDUSTRY AND FIRM, STRATEGY, STRUCTURE, AND RIVALRY IN 1977.**

In 1977, Tasmania's shipbuilding and marine industry was represented by a loose collection of small to medium-sized single-businesses with limited growth potential in the stagnant domestic market, and virtually no realistic opportunities for growth in the international market. Although the firms were single business units serving specific market needs, the nature of the relationships between their owners proved to be far more extensive than just the line of products that each manufactured. Of the relationship that existed within the industry at the time, a number of the TLSI cluster firm's founding managers stated that:

Hobart is a small place. Probably all marine engineering businesses in Hobart liked to know their competitors or on a first name basis – you would be amazed, there wouldn't have been one that I couldn't walk into and know everyone... we work off one another – but that is half the point – if we get too much work we say "Go and see him or go and see whoever." It has all been personal over the years. We have had expertise from all over the industry over the years, you knew what their expertise was – and we just take [our problems] to them and sit down and work the things through (Richard Riley. Personal Interview, 2002).

We have been sort of friendly towards one another for a long, long time and as much as the fitters want to borrow something, they come and borrow something and if we want to borrow something from the fitters we go and borrow it off them (Anthony LaFevre. Personal Interview, 2002).

That was the arrangement and still with Robert in charge it is still basically the same today. It is not, “When are you going to do it and what is it going to cost,” it is, “ Just get in here and do it.” He said, “You’re not going to rip me off, are you?” “No.” So, that was that, a handshake agreement so well that is the way we have carried on ever since. (Richard Riley. Personal Interview, 2002).

The Tasmanian shipbuilding industry’s related and supporting industry was characterised, therefore, by the existence of a trust-based social network that had grown within the state’s marine manufacturing community over several generations. The maritime expertise, management systems, and physical assets (including their workforces) of the socially networked firms were at times traded as common assets among the group, and were often lent to others within the social network in times of need. In terms of Porter’s ICT, the social network represented an effort by Tasmania’s shipbuilders to maximise the individual goals of the firms (i.e. profit and sales growth in stagnant domestic markets) with the survival needs of the industry, that is, the incorporation of efficient resource allocation systems within a collection of small and medium firms in a regional economy.

#### **5.4 THE TASMANIAN SHIPBUILDING INDUSTRY AND DEMAND CONDITIONS IN 1977.**

By 1977, the Australian shipbuilding industry had enjoyed some 30 years of post-war protection from the federal government in the form of tariffs and subsidisation. As a result, the Australian shipbuilding industry became particularly uncompetitive on the world markets (Beeson, 1997). As an indicator, Inglis (1988) notes that by 1977, only

ten percent of the nation's shipbuilding production was manufactured to satisfy international demand. The Tasmanian shipbuilding industry enjoyed even less international success, with 100 percent of its output sold onto the stagnant domestic Australian market for commercial fishing vessels and recreational craft.

The subsidy and tariff regime that was originally implemented by the federal government to help Australian shipbuilders survive the highly competitive post-war period, where domestic demand for replacement vessels was considerable, and where overseas manufacturers had significant cost advantages (Beeson, 1997). However, the subsidy scheme evolved to become fundamentally important to the profitability of the nation's shipbuilders, and powerful lobby groups soon formed to maintain, and indeed increase, the subsidy levels. As noted in Chapter Four, between 1947 and 1972 the subsidy scheme alone increased from 25 to 45 percent of what the government deemed to be 'allowable shipbuilding expenses' (Beeson, 1997). After the surge of activity associated with the post-war effort diminished, however, the Australian industry's output declined to a level commensurate with servicing the relatively unsophisticated domestic demand for fishing vessels and recreational craft. With the onset of 'stagflation' in the mid-1970s, and the dramatic decrease in world demand for new ships, the Australian (and by association, the Tasmanian) shipbuilding industry and marine manufactures regressed to virtually nil production, and was perceived globally as being synonymous with inefficiency, low productivity, poor management practices, and antagonistic industrial relations (Holland, 2001).

## **5.5 THE TASMANIAN SHIPBUILDING INDUSTRY AND FACTOR CONDITIONS IN 1977.**

Tasmania has a long history of building shipping vessels that pre-dates European settlement by several thousand years. Aboriginal inhabitants were sufficiently skilled in boat building for their craft to navigate the treacherous seas around Maatsuyker Island, where different tribes met each summer (Inglis, 1988). After European settlement, shipbuilding became a response to the obvious needs of an otherwise isolated island community that was in possession of a prosperous whaling and sealing industry. In order to satisfy the economic need for trade and employment, regular shipbuilding began in the state in the 1820s, with the construction of several 30 to 100 tonne vessels for the purposes of coastal trade. Four main centres of activity developed in the state: Launceston, Hobart, on the Huon River, and at the penal settlements - first Macquarie Harbour and later at Port Arthur. In 1826, a dedicated shipyard was established on the Tamar, which produced, amongst others, the schooner *Rebecca*, built at Rosevears, in which John Batman landed at Melbourne Town in 1834.

The mid 1800s saw the expansion of the industry in terms of both the number and size of vessels being built. The colonial builders began to construct vessels large enough to take their place on the Australia-England route. Between 1838 and 1848, Hobart was producing more ships than the remaining Australian colonies combined. The major reasons for Tasmania's dominance in colonial shipbuilding were the associated costs, which were significantly lower in Tasmania than in the mainland colonies, and the availability and excellence of native timbers.

In 1977, with the help of a century of progressive shipbuilding technology, Tasmania's main factors of shipbuilding production had become relatively more specialised and advanced than their interstate competitors, and centred around three main resources: its human capital; its physical resources; and its location. In terms of human capital resources, the Tasmanian population has an historical dependence on (and therefore a culturally ingrained knowledge of) innovative and high-quality boat and ship design and production (Industry Audit, 1998). In 2003, shipbuilding was described by Premier Bacon, as a 'natural industry' of the island state; one that has prospered and diversified its output (and by consequence demonstrating its innovative ability) over the past two centuries:

... I think that is an example of a characteristic that Tasmania has that maybe isn't unique in the world but has a very long tradition here so it is at least an area of activity which we have proved, over a very long time, that we can be very good at, because we are an island community so we have a relationship with the sea, we look at the sea everyday, a lot of people work at sea, we have our recreation on the sea, it just surrounds us (Jim Bacon. Personal Interview, 2003).

In terms of the state's basic physical resources, Tasmania maintained a moderately sized and somewhat specialised workforce able to satisfy the existing domestic demand for the state's marine products. This coupled with the continued availability of high-quality basic factors (such as Tasmania's world-class woods for ship construction) meant that although international demand for Tasmanian marine products was negligible, the state's reputation remained highly valuable in terms of its innovative abilities, a point of differentiation in Australia's domestic market. In terms of the state's geographic resources, Tasmania's location off the southern coast of the Australian mainland enables it to be positioned by the federal government as the nation's centre for specialised maritime research into the Great Southern Ocean

and Antarctica, internationally recognised responsibilities that had flow-on effects to the state's reputation as a world-class maritime centre. As a longstanding federal government member for Tasmania suggests:

...there was also the [federal] commitment to designate Tasmania as the jumping off point for Antarctic related activity and that generated quite a bit of the university centre for Antarctic and Southern Ocean studies, the attempt to have the boats that go to Antarctica, the holding of meetings for the treaty here and the Southern Ocean Convention coming here so there was a whole range of activity that I suppose was conceptualising Tasmania as a maritime centre around the Southern Ocean and there was also the big fishing industry – the boom around that time of the Orange Roughie fishery, it sort of declined after the Orange Roughie was virtually fished out, but at that time, if you remember, there was a huge concentration of attention as developing quite a large processing and shore based side to it which was also thought to be generating demand for commodoring and supply of fishing vessels (Duncan Kerr. Personal Interview, 2003).

## **5.6 THE TASMANIAN SHIPBUILDING INDUSTRY AND RELATED AND SUPPORTING INDUSTRY IN 1977.**

As noted, in 1977, Tasmania's shipbuilding industry consisted of a collection of single business firms, catering to the needs of narrow target markets (such as specialised steel hull construction, winch construction, marine maintenance etc). Of the nine firms that comprised the TLSI cluster in 2002, only five were operating in 1977. These five firms were Colbeck & Gunton (insulation manufacture and installation), Skeels & Perkins (a marine foundry and machining business), Muir Engineering (a winch and anchorage manufacturer), FC Management (a steel hull manufacturer), and of course, International Catamarans (pioneers of fast-ferry construction). Each of these firms was a profitable and ongoing concern in its own right during the late 1970s, and served the needs of specific target markets within Australia. The regional nature of the Tasmanian economy, coupled with the static

demand for their products, meant that Tasmanian marine manufacturing businesses were small to medium sized enterprises (gauged by their employment numbers), and that the standard of infrastructural support was largely 'basic and generalised' by Porter's definition.

The industry's supporting educational infrastructure comprised principally of the federal government's Apprenticeships Commission, which in 1975 was amalgamated with the TAFE system of trade education and qualification (Ray, 2001). The amalgamation resulted from the widespread recognition the TAFE system needed to focus on "the needs of the individual for lifelong vocationally oriented education, and that the manpower needs of industry should be the context of courses" (Kangan, 1974: 23). Regarding the issue of trade training and qualification, this philosophy was well summarised in a 1976 Australian submission to the OECD:

Mention was made of the narrowness and the high degree of skill and industry orientation of many TAFE courses. This is nowhere truer than in relation to the trades stream which has also had to carry the greatest share of the burden of low funding in such areas as equipment and facilities, which are often very expensive. When these disadvantages are coupled with the conservative outlook of many of the bodies advising on trade courses, the static condition of trade training becomes explicable. Many of the measures are designed to bring about change in emphasis in TAFE from the needs of industry to the needs of the individual. This change is especially important in the trade training areas where the needs of individuals (because they are usually younger and have no option but to attend courses) should occupy a more central position (Department of Education, 1976: 115).

Other educational institutions included the existing primary and high school systems and the state's university, although neither offered courses focused on developing the state's shipbuilding industry. The directly relevant government departments that existed at the time were the Department of Industrial Development and Trade, the Department of Labour and Industry, and the Office of the Premier (there was no



department specifically charged with state development). In 1977, the Department of Industrial Development and Trade was charged with facilitating export sales (of which the shipbuilding industry was not a major contributor at the time); the Department of Labour and Industry was focused on facilitating industrial relationships within the state; and the Office of the Premier was focused on the restructuring of the state's industrial-based economy. Of greatest benefit to the state's shipbuilding industry from the private sector was the state's logging industry, which gave shipbuilding firms access to the state's the high quality wood resources that proved ideal for hull, mast (and other) marine production.

## **5.7 SUMMARY OF THE TASMANIAN DIAMOND FACTORS IN 1977.**

In 1977, the structure of the demand faced by the Tasmanian shipbuilding (and marine manufacturing) industry was almost exclusively from the domestic market, with little prospect for growth given the prevailing global economic climate. Such were the limitations for growth that several businesses involved in the TLSI cluster today undertook diversification strategies to improve their revenues. For example, Colbeck & Gunton expanded its insulation business to include the housing sector in order to augment its revenue stream. Tasmania's factor conditions were, however, suitably specialised to the requirements of a successful internationally oriented shipbuilding industry, with the state's human capital resources (in terms of innovative shipbuilding expertise) and reliance on sea transport particularly well developed by 1977. Additionally, the state also had developed a stable set of related (however rather 'basic') physical resources, such as skilled maritime labour, an abundance of waterfront real estate, and excellent shipbuilding materials that remained largely intact and capable of supporting a marked increase in production.

The state's related and supporting industry included a newly formed alliance between the Apprenticeships Commission and the TAFE education system, and an established logging industry which enabled the shipbuilding industry access to its quality wood products. The industry's firms' structure, strategy, and rivalry were based on a friendship network of marine manufacturer managers that spanned generations within the state. As such, and where possible, firms were ready to offer support (in terms of labour, expertise, and/or other sophisticated maritime inputs) when required to another business on the understanding that the goodwill would be returned if, and when, required. In addition, the state's prestige as a maritime centre was significantly enhanced when the federal government undertook a policy direction that incorporated Hobart Port as a centre for Great Southern Ocean and Antarctic research.

## **5.8 CHAPTER SUMMARY.**

This chapter provided a summary of Tasmania's diamond factors as they existed at the inception of the TLSI cluster in 1977. The development of Tasmania's diamond factors, and the role played by successive Tasmanian state governments' over the TLSI cluster's life cycle, is the topic of the following chapters.

## **CHAPTER SIX.**

### **ANALYSIS OF THE CASE STUDY: THE INTRODUCTORY STAGE OF THE TLSI CLUSTER'S LIFE CYCLE 1977 – 1984.**

#### **6.1 OBJECTIVE OF THE CHAPTER.**

The objective of this chapter is to provide an account of the critical incidents and interactions between the Tasmanian government and the TLSI cluster during the period 1977 – 1984. This period of time was associated with the introductory stage of the TLSI cluster's life cycle, as it represents the formation of the cluster's hub-firm International Catamarans, whose foray into aluminium hull construction culminated in the launch of the world's first commercially built all-aluminium wave-piercing catamaran in 1984. In order to portray the governments' role in the development of the TLSI cluster during its introductory stage, this chapter includes a discussion of Tasmania's diamond factors, and the manner in which they were advanced (or otherwise) by the interaction of the Tasmanian government and the TLSI cluster. The chapter closes with a summary of the interaction between the Tasmanian government and the TLSI cluster in terms of Porter's ICT.

#### **6.2 THE TASMANIAN GOVERNMENTS: 1977-1984.**

During the period 1977 – 1984, Tasmania was represented by two elected state governments, one representing the state's Labor Party, and one representing the state's Liberal Party. In 1977, at the formation of the TLSI cluster's hub-firm International Catamarans, the incumbent government was Doug Lowe's Labor Party,

which held power between December 1977 and May 1982. During its term in office, the state Labor party oversaw the formation of two important supporting infrastructures for the state's shipbuilding industry. The first was the enactment of a macro-economic policy, known as the State Strategy Plan; the second was the formation of the Australian Maritime College (AMC) in the City of Launceston.

In May 1982, the Gray Liberal government was elected to power, and would remain in office throughout the remainder of the introductory stage of the TLSI cluster's life cycle. During its term in office, this government oversaw four critical policy initiatives during early development of the TLSI cluster. First was the Tasmanian government's enactment of legislation clearing the way for Incat to purchase land at Sullivan's Cove in Hobart to accommodate the development of its new range of vessels. Second was the establishment of the Tasmanian Development authority in 1984, a department charged with economic development of industry through data gathering and the distribution of loan guarantees and grants. Third, was the Tasmanian government's agreement to a proposal that Incat build a new generation fast-ferry catamaran for the government-run Bass Strait passenger service. Fourth, was the Tasmanian government's successful lobbying of the federal government to help fund Incat's initial expansion at Sullivan's Cove, and to increase the Commonwealth government's shipbuilding bounty grants by \$8 million as part of the renewed Freight Equalisation Scheme.

### **6.3 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'FIRM STRATEGY, STRUCTURE, AND RIVALRY'.**

Incat's initial experimentation with the design and construction of the world's first aluminium-based hull did not involve the support from state or federal government; instead it included the input of other private sector firms within Hobart's marine manufacturing industry. Robert Clifford called upon the experience of his friendship network to help with the design, construction, and development of the technology required to shape the newly adopted shipbuilding material to the required performance and safety standards. Concerning the experimental stages of Incat's designs, one managing director within the friendship network said of the collaboration:

So, we were at Bellerive with 44 gallon drums around the side of it [the vessel], filling them up one at a time to see what angle this would get with a certain weight. That is how it all started. It was actually a surveyor who suggested Robert get in touch with Phil Hercus in Sydney, a ship designer and Phil got on line and they started to do a few numbers. So, it made it legal after that. We sort of built at different times, different shapes of boats, and different types of boats. We had some terror ideas (Richard Riley. Personal Interview, 2002).

During the initial period of experimentation, the Tasmanian government was largely unaware of the industry's efforts at creating the next generation of commercial shipping vessel. At the time, the Lowe Labor government was otherwise distracted from the causes of individual industries, implementing instead an economic restructuring policy that attempted to direct the state away from its reliance on hydro-industrialisation, to one that had a greater emphasis on government-private sector linkages:

At the end of the Reece era [the previous state Premier] Tasmania had probably exploited those industries – not exploited but got the best that they could probably get out of it – and it was a bit of a turning point then. Basically, at that time, the departmental structure that had existed had very little to do with the functional obligation on government, in relation to its social and developmental and economic strategy and there needed to be a more formalised and more direct line of authority established, clear linkages between the agencies, a far different approach in regard to recruitment and development and even education of staff in these sector positions (Doug Lowe. Personal Interview, 2002).

The Lowe Labor government undertook the responsibility of restructuring the macro-economic environment of Tasmania, and given the resource constraints of a regional economy, had not achieved a similar focus on individual industries within the state. Of his government's stance on the state's shipbuilding industry in particular, Premier Lowe stated that:

Well, we didn't perceive it as anything special. You have come one step further than the actual development of policy that lead to the establishment of the shipbuilding industry. The thrust of government industrial development policy in the mid 1970's was really evolving from a very bureaucratised public sector government structure advisory secretariat seated within government, predominantly from people who were experienced in the public sector as distinct from the commercial sector itself (Doug Lowe. Personal Interview, 2002).

As such, the Lowe Labor government provided little direct assistance to Incat (or the marine manufacturing industry in general) in its efforts in developing the new aluminium shipbuilding technologies. That responsibility, and the associated costs and benefits, were left to Incat's entrepreneurial manager, Robert Clifford, and his partner Phil Hercus to organise. The SSP introduced by the Tasmanian government did, however, require that Clifford engage the services of Mr. Hercus, and can be credited somewhat with the formation of the partnership that was to become 'International Catamarans'. The Tasmanian government's position on restructuring the nature of the regional economy through the SSP, however, was of some

considerable benefit to the reputation of the state's shipbuilding and marine industries. The Tasmanian government's strategy was to go some way to improving the level of domestic and international demand for the state's production and geographic location for shipbuilding and repair, and for its ocean research services (this will be discussed in more detail in section 6.4). The initial private sector reaction to the strategy was optimistic:

Hobart shipbuilding interests yesterday cautiously supported Tasmanian government moves to establish a ship repair and servicing industry in Southern Tasmania. The Premier, Mr. Lowe, said after a meeting with the interests there was general support for the concept, but it was agreed that the next step should be to get a clear indication of the likely cost, guaranteed use and the overall viability. Mr. Lowe said that the Tasmanian government was keen to have Tasmania capitalise on its geographical location, and on the growing reputation internationally as the major centre for initiatives in the Antarctic and Southern Ocean (The Mercury, 1981).

Incat's domestic exporting success was evident by the time that Gray Liberal government came into power in May 1982, as was the company's efforts at perfecting aluminium-hull technology for a new generation of fast passenger catamarans. Again, however, the Tasmanian government was somewhat unconvinced about the potential of the 'new' industry to provide sustained economic growth for the state. As a result, the Gray government initially maintained an arm's length relationship with the firms involved. Of Incat's experimentation with the development of aluminium (light) shipbuilding within the state, Premier Gray stated:

I think we saw Clifford as one opportunity amongst many– but I don't think it was ever thought, "We could become a grand shipbuilding nation of the world?" Whatever. I think it was – "Let's see how if this one goes and we will get on with the next one then". It wasn't any great perception of this is going to be a marvellous thing. We didn't have a dream that we were going to be building great shipbuilder's names. I think the first thing was to try and support the fact that it was a central business and flowing from that there would be other offshoots of success to develop. I certainly

didn't have any great vision as I have explained about the shipbuilding industry. It was, here is an opportunity, let's support it (Robin Gray. Personal Interview, 2002).

In 1982, Incat's management approached the Tasmanian government for in-principle support for the relocation of the Incat business to larger premises at Sullivan's Cove in Hobart. Clifford cited that the business of fast ferry catamaran construction was potentially a high growth industry, supported by the fact that the company had designed, built, and sold, ten vessels in that calendar year alone (The Mercury, 1982). Clifford also remarked that unless the government allowed the company to build a new state-of-the-art shed at Sullivan's Cove (which at the time was not correctly zoned for such industrial works), then the company's growth and employment potential would be significantly restrained, and that the company may need to seek similar opportunities interstate (The Mercury, 1982):

Mr. Clifford said that his Hobart shipyard had been unable to cope with recent orders and unfortunately they had gone to licensee builders in Cairns and Singapore. Mr. Clifford said that the possibility of Incat purchasing a portion of the old gasworks site was an important breakthrough for his company. It would mean that the Hobart shipyard would not have to turn orders away, and would enable the company to continue developing shipbuilding techniques and testing new ideas in Hobart (John Cleary. Tasmanian government Press Release, 1982: 2).

With this claim in mind, the office of the Premier undertook measures to circumvent the issues surrounding Incat's request, clearing the way for the company to purchase and develop the required land. Utmost in the Premier's mind at the time of the decision was the issue of job maintenance and creation:

I guess every time you supported a new industry you did think about, to be presented with claims about how much employment it was going to create, over which period it was going to create, and that obviously is a factor. We would work our guys out to get an industry up, Incat, and at the same time try and create 200 jobs in the next year, at the same time you will find a couple of major industries go, including five others, so you are never winning – you are always going backwards, no matter how hard and how much effort you put in, just soul destroying sometimes (Robin Gray. Personal Interview, 2002).



I think, you know, if you go back and look through all the industries that got support and help over that period there have been some real successes and it has been a pleasure to have been associated with them. But it was part of a real concerted effort on the part of the government to do that - that was our major policy – that was what we were about – it was trying to create employment (Robin Gray. Personal Interview, 2002).

The acting Premier at the time, Mr. Cleary, released a press statement at the time supporting the government's action on the matter, and once again, job creation was the rationale provided:

The government was pleased to be able to open the way for Incat to stay in Tasmania. The company was an important employer in its own right, and created work for local suppliers and sub-contractors. Mr. Cleary said that the company had developed an international reputation for fast, economical, safe and reliable vessels and was reaping the rewards of the initiative and skill of its founders. Mr. Cleary also paid credit to the local suppliers and sub-contractors who had contributed to the vessel construction (John Cleary. Tasmanian government Press Release, 1982: 2).

In 1984, the Gray Liberal government undertook a major policy initiative that established a government department specifically charged with the economic development of Tasmania. The office of the Premier of Tasmania had involved the portfolio of 'state economic development' for some time, and the new government department, known as the Tasmania Development Authority (TDA), sought to better focus the portfolio's research efforts, strategy, and resources. A representative of the TDA said of its function that:

...the [TDA] has an overall function to look after the portfolio area of the Minister for State Development, the Premier, and this includes tourism, the Office of Sport and Recreation and the Office and affairs of the Department of State Development. The department is completely independent of whoever may be in power (John Keller. Personal Interview, 2002).

One of the TDA's first responsibilities was to research the claims of Robert Clifford, who in 1983 produced the prototype wave-piercing catamaran for passenger travel. Traditionally, the catamaran design was less than ideal for sailing in 'choppy water' of over one-metre waves. Clifford (1998: 44) stated that the idea for the new design culminated on "a particularly rough day...I thought that it must be possible to produce a more comfortable vessel". Once again, Clifford utilised the input of his marine manufacturing 'friendship network' to brainstorm the specifications of the innovative design. The trial runs of the new design proved optimistic, and the entrepreneurial Clifford saw its potential for further international export success. Even though Incat had by this stage moved into its new Sullivan's Cove shipyard, the company was unable to afford the cash flow requirements of the commercial construction of the vessel. In 1983, Clifford approached the state Premier for financial support in the commercial development of a new wave-piercing aluminium catamaran design, as well as seek support for its lease to compliment the Tasmanian government's Bass Strait passenger service. Although Incat's domestic exporting success was well established, as was his entrepreneurial flair for shipbuilding and design, the Tasmanian government remained reticent at providing the considerable sum requested for the production of a commercialised vessel. As Premier Gray recalls:

I was never convinced – in those times Clifford had run a few ferries – his nickname was "Bean Head". He didn't have a record apart from success running those ferries at a time when he was bound to be successful anyway because there was no alternative – after driving the one through the bridge – going through Campania to get to Hobart – so I was really hoping that the judgment of the TDA would do the underwriting and I was very conscious of the risk to the government of doing it. If it hadn't come on, we would have worn it (Robin Gray. Personal Interview, 2002).

Well, we obviously had to – since building those million dollars boats – we kept our fingers crossed and hoped for the bloody best. You can never be sure on these things – it could have been an absolute disaster (Robin Gray. Personal Interview, 2002).

Albeit with some initial concerns, the Tasmanian government, through the TDA and office of the Premier, lobbied the federal government grants commission, and itself granted a Tasmanian government-guarantee for the finances required to construct the world's first commercially viable wave-piercing aluminium catamaran. Although the loan scheme ensured that Incat would have access to the required funding, the nature of the government's action was not solely a benevolent one:

The Tasmanian government loan guarantees were given not to ensure the industry had access to cheap money, but rather so that the Tasmanian government could influence the company's strategic outcomes. In other words, it gave the Tasmanian government the power of moral-suasion. Financial support for Incat was very necessary during that stage of its life cycle. What we provided was a government guarantee – it was as good as a government cheque. In the end – it was \$6 million that I guaranteed Clifford (Robin Gray. Personal Interview, 2002).

So, Robin gave a guarantee at that stage to Incat and that was quite critical, getting their funds, starting up and developing their business and getting up to Prince of Wales Bay and building their first shed, and that sort of thing. So, we kept obviously close contact with Clifford and his operation and we recognised that as a business of real potential and Clifford has always been an impressive fellow, some would say he is a ... but he is a goer and he has achieved a lot. We were working closely with him (Ray Groom. Personal Interview, 2002).

The Australian federal and Tasmanian government loans and grants afforded to Incat at the time comprised of funding allocations for both the construction of the wave-piercing vessel itself, as well as bridging finance for the required \$1 million re-tooling of Incat's Sullivan's Cove shed. A minister in the Gray Liberal government stated that in hindsight, the government's loan guarantee and moral-suasion was fundamental to the well-documented growth and success of the TLSI cluster in the proceeding years.

When I was a minister in Robin Gray's government, we gave a guarantee to Incat which was fundamental to them starting up the business we know today. So, this idea of private enterprise in a state like Tasmania, is rare, there is always some degree of government involvement when there has to be, obviously in planning arrangements, that sort of thing, but also support. We are bit isolated and we are a small community and I think compared to most states, and it is probably true of all states, but in the comparative sense but we probably have a greater role to play as a government in supporting industry (Ray Groom. Personal Interview, 2002).

However, whilst Tasmanian government ministers were aware that the driving force behind the early innovative success achieved by Incat was that of the entrepreneur Clifford, they recognised that the company's relationship with the government was crucial to its success:

You have got to give Clifford full marks for the innovative design, they have done a fantastic job, really have, I wouldn't want to create the impression or take the credit from them because they were blokes that did it once we provided the wheels to make it happen. The bank helped him of course, as did the AMC with its complimentary tank testing technology– it was really a question of providing that first lot of assistance, I think that was the most important, probably without it he wouldn't have gone too far (Robin Gray. Personal Interview, 2002).

### ***6.3.1 Summary of the government roles in developing the regional economy's "firms strategy, structure, and rivalry" during the introductory stage.***

In terms of facilitating the regional economy's 'firm strategy, structure, and rivalry' during the introductory stage of the TLSI cluster's life cycle, the Tasmanian governments' role was initially removed from any direct interaction with the TLSI cluster firms. The state's shipbuilding and marine manufacturing firms enjoyed the interdependencies and support infrastructure of a close 'friendship network' that had developed over a number of generations prior to the establishment of Incat in 1977. As such, instead of allocating government resources in developing relationships between the state's shipbuilders and marine manufacturers, the Tasmanian

government was intent on restructuring the state's economy away from its dependence on industrialisation, whilst building its reputation as a producer of high-quality export merchandise.

The Gray Liberal government's decision in 1984 to provide a loan guarantee to Incat for the development of the world's first wave-piercing catamaran represented the first major policy directive by the state. It allowed Incat, and its 'friendship network' of marine manufacturing firms, to experiment with the wave-piercing catamaran design and the related innovations required for its successful launch. The Premier's rationale for the loan guarantee was that the Incat innovations were strongly linked to significant job creation opportunities within the state, a priority for the Gray Liberal government at the time. A policy initiative focused on the longer-term development of the state's 'firms strategy, structure, and rivalry' was the creation of the TDA, a government department specifically charged with the economic development of the state. Through the TDA, the Tasmanian government undertook research and development schemes tailored to the private sector's needs, as well as provide government grants and other assistance in the development of key industries, including the TLSI.

#### **6.4 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'DEMAND CONDITIONS'.**

As noted, Australian shipbuilders experienced declining international demand for their production post World War II largely due to its reputation as an uncompetitive and problematic industry with which to deal (Beeson, 1997). As part of its economic restructuring efforts away from industrialisation and ineffective government-private

sector relationships, the Tasmanian government undertook major policy initiatives to position the state of Tasmania as Australia's premier port servicing the Great Southern Ocean region. Premier Lowe commented on Tasmania's geographic advantages in terms of the government's economic restructuring plan:

The next step in my judgement was to make sure that we made Tasmania, as far as possible, a super centre for southern oceans activity and we looked specifically at developing not so much ship building but ship servicing facilities, particularly in the Port of Hobart but also looking at the Tamar Valley, it had developed of its own initiative a lift operation for smaller vessels, both for construction and for overhaul, so we had, at both ends of the state. In 1980 I went overseas after consultation over an 18 month period with a number of local businesses who were prepared to move into a consortium for the purposes of purchasing a very large floating dock to bring to the southern estuary and that it would have basically seen Tasmania become the major servicing centre for salient vessels operating in the southern oceans (Doug Lowe. Personal Interview, 2002).

The Tasmanian government's effort at repositioning Tasmania, therefore, concentrated on the development of the state's reputation as a centre for oceanographic excellence in the southern ocean region, a reputation from which individual firms within the state could potentially increase their profitability. As such, the Tasmanian government pursued an indirect strategy of increasing the size of both international and domestic demand for Tasmania's maritime production through its investment in reputation development for the state. The first step in the repositioning of the state's reputation in this area was the Tasmanian government's lobbying of the federal government concerning the relocation of the CSIRO's oceanographic research unit to Hobart:

If the oceanographic research unit of the CSIRO is transferred to Tasmania, Hobart may become the base for a new research ship. During question time in the Senate yesterday, the Tasmanian Liberal senator mentioned a CSIRO report, which he said supported the establishment of the oceanography group at Hobart in conjunction with the Antarctic division (The Mercury, 1980: 2).

As noted, in 1983, Incat had approached the newly elected Gray Liberal government to help fund the commercial construction of the world's first wave-piercing catamaran, and to undertake a lease agreement for the vessel to complement the Tasmanian government's existing Bass Strait passenger service. Again, the Tasmanian government held reservations about allocating public funding into an otherwise untested commercial operation. The Tasmanian government, however, was faced with an unattractive situation that itself had helped to create. Firstly, the state Premier, through the TDA, had made some \$6 million available to Incat to construct the new wave-piercing catamaran. Secondly, Incat could not afford to construct this vessel and then have it remain unsold (or unused) for any length of time, given the significant capital investment in the product. It became a responsibility of the Tasmanian government to both help fund and employ the vessel for the Bass Strait passenger ferry route, and indirectly help advertise the merits of the company, and Tasmanian government's, investment in the new technology:

We were initially reluctant operators of a passenger service across Bass Strait, we really didn't want to do it but we had to do it and we recognised that if we didn't it was going to be disastrous.... We hoped that eventually someone else would run a private enterprise passenger service, someone like Incat (Robin Gray. Personal Interview, 2002).

#### ***6.4.1 Summary of the government roles in developing the regional economy's "demand conditions" during the introductory stage.***

During the initial period of the introductory stage of the TLSI cluster's life cycle, the Tasmanian government undertook little direct action to improve the size or sophistication of the international or domestic demand for the state's shipbuilding and marine manufacturing industry. Instead the government focused on the issue of

modernising the state's economic orientation away from the industrialisation of the late 1940s and 1950s, to one that could more effectively compete in an increasingly globalising economy. As such, the Tasmanian government's 'economic reorientation' strategy was generic in nature, that is, one that aimed to serve the interests of the entire set of industries operating within the regional economy by improving the international reputation of the state, not solely that of its shipbuilding industry. The change of government towards the end of the introductory stage, however, witnessed the government undertake a promise to lease one of Incat's wave-piercing catamarans upon its successful completion. The Tasmanian government provided Incat with increased local demand for its output, and an opportunity for the company to display the value of its innovative design to both the domestic and international market for passenger ferries.

#### **6.5 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'RELATED AND SUPPORTING INDUSTRY'.**

The priority of the Lowe Labor government between 1977 and 1982 was to reform the Tasmanian economy, and one of its first major undertakings was the reformation of the roles played by public service organisations and departments in relation to the private sector. In order to achieve this, the Lowe Labor government utilised an independent (but government commissioned) *Callaghan Report* into the issues facing the Tasmanian economy, and the manner in which the government could best support sustained economic growth. The Callaghan Report, commissioned by the 1975 Neilson Labor government, was released in 1977, and examined Tasmania's special situation as a regional island economy. It studied the structure of the economy, its demographic characteristics, its resource endowments, the (un)employment situation,



and the nature of the federal government's assistance to Tasmania. The Premier said of the public sector restructuring initiative:

● Out of the Callaghan Plan there developed a 12-point plan, basically to lift the region's economy. Part of that change was to make the public service up to date and relevant, having structures that would ensure that it worked efficiently, it also highlighted the need to diversify Tasmania's industrial base, and by that time Brendon ● Kelly [an Irish national economic consultant] was already here and with the feedback from the Callaghan Report, there were good guidelines for us to follow in the period that followed. In relation specifically to shipbuilding, I actually went directly to Canberra in the August of 1980 and presented to them a detailed outline of the strategy that we were trying to seek with the development of the floating dock facility here in Hobart. It gave us an ability to present a proposal whereby vessels up to the 15-20,000 tonne capacity could possibly, in the long term, be serviced through facilities established in the state (Doug Lowe. Personal Interview, 2002).

The findings of the Callahan Report were used as a bargaining tool for the Tasmanian government, in terms of it seeking greater federal government funding for the restructuring process to be undertaken by the state's public sector. As Premier Lowe noted:

It was a matter of trying to persuade the Federal Government to assist in financing infrastructure using the guidelines that were provided through the Callaghan Report and that related as much to the development of infrastructure as it did research and development and the provision of targeted grants, tax relief and policies to encourage people, entrepreneurs and developers to actually move into the area – it was an important one – and the development of consortiums and coalitions of interest. It was another area that we were able to act very significantly on. We had that in relation to shipbuilding and sea fishery strategies, the same can be said in relation to the poppy industry and the growth and expansion there, the development of the essential oils industry and the hop industry, the way it moved into research and development through our own local research and development capability here, both in the public and private sector, both moving to new strains of hop that were far more efficient in their production, better in terms of disease resistance and everything else, it was all part of the expansion of activity that took place, basically through the decade of the '70 (Doug Lowe. Personal Interview, 2002).

In order to transform the public service's role in this regard, the Tasmanian government hired international consultancy expertise in its strategy to rid the state of its reliance on hydro-industrialisation as a source of job creation and economic growth:

Brendon O'Kelly came out [from Ireland] for a considerable amount of time as an advisor in that area but he also brought with him a lot of the knowledge of what Ireland was at that stage doing, it was confronting pretty similar problems to ours, or it had done in the five years prior to his arrival out here. He had been involved in the development of strategies for the Ireland nation, bearing in mind the fact that in area it is exactly the same as Tasmania virtually, and we sought to build upon that. By the end of the process, there was a core of considerable ability within the government's policy advisors; the linkages with the commercial sector and the significant areas of the commercial sector, both within the state and nationally, had developed quite broadly. I had established a local planning and industry co-ordination advisory council that had many of the representatives of the captains of industry here locally...(Doug Lowe. Personal Interview, 2002).

In 1982, the Gray Liberal government undertook steps to support Incat's business by passing legislation that allowed the company to purchase land at Sullivan's Cove in Hobart. Sullivan's Cove was, at the time, incorrectly zoned for the establishment of a major shipbuilding yard in the area, and in order to remove the bureaucratic systems involved with the delay of the company's required expansion. Clifford had hinted at relocating his business, and his employment potential, interstate, should the company's planned move be delayed, or disallowed by local government. Premier Gray stated of the Tasmanian government's intervention into local government activity that:

I think at that stage, that was considered where the shipping activity should be – that's the port and therefore we should build ships there. Probably it was Clifford's favoured location. He later moved on, of course, but that was when he outgrew where he was. I think that was pretty much – that would be the reason....I'd say yes, for sure, by

encouraging Incat in particular, and some of their other sub-contractors, definitely had a marked impact on marine business. However, I don't think the impact would have been so big if Incat hadn't been around at the time to do it (Robin Gray. Personal Interview, 2002).

Once again, the employment issue was the rationale behind the Tasmanian government's willingness to support Incat in its request to relocate to its favoured location. The Premier stated that Incat was perceived to be the 'driving force' behind the state's resurgent shipbuilding industry, and that the employment potential (both directly and indirectly) of maintaining Incat's presence in Tasmania was an argument that the government could not afford to ignore.

#### ***6.5.1 Summary of the government roles in developing the regional economy's "related and supporting industry" during the introductory stage.***

During the introductory stage of the TLSI cluster's life cycle, the Tasmanian governments' economic restructuring away from its dependence on industrialisation necessitated its reorganisation of the public sector organisations (i.e. the state government departments). The rationale for this Tasmanian government department reorganisation was to achieve a streamlined and relevant set of service organisations that facilitated the interaction between the Tasmanian government and the state's private sector industries. The reorganisation resulted in a reduced set of departments through which the private sector firms had to engage when interacting with the government, and therefore, fewer channels to negotiate when attempting to engage the influential services of the state's Premier, who by this stage had begun to assume greater responsibilities for the state's economic development. In terms of the facilitation of the TLSI cluster, the Tasmanian governments' reorganisation facilitated the speedy resolution of Incat's growth and training issues by more efficiently

identifying the barriers to the company's growth potential, and overcoming these barriers through the direct involvement of the state's parliament, the Premier, and his department of economic development, the TDA. In essence, the government itself undertook measures that enabled it to become a more effective supporting infrastructure to the growth needs of Incat directly, and the remainder TLSI cluster's firms indirectly.

## **6.6 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'FACTOR CONDITIONS'.**

At the beginning of the introductory stage of the TLSI cluster's life cycle, a number of factor conditions were evident in Tasmania that were important to the state's industries, however were not directly associated with innovative shipbuilding, nor directly influenced by the government's policy initiatives up until that point in time. One of the most important factors cited by the cluster firm managers relates to the availability of relatively affordable land suitable for the construction of ships and other marine manufacturing:

It is based on a lot of things actually, one of the most important is that it's economically sound to build here because the real estate, deep waterfront real estate or thereabouts. It's at a logical price whereas in Sydney it is totally unaffordable and illogical; Melbourne is pretty much the same – that's one of the major reasons (Alan Williams. Personal Interview, 2002).

Another factor identified by the cluster firm managers relates to the lifestyle conditions enjoyed by people living in the state:

Lifestyle, Tasmania is a great place to live. What I mean by that, it is a good place to live but, of course, that and the cost of operation is certainly an offset to being interstate or some other place in Australia (John Muir. Personal Interview, 2002).

Well, we are fond of Tasmania and the work was a progression, like a series of managed companies, and it was an easy transition just to start up our own maritime business in this state. As for the lifestyle, we enjoy living in Tasmania and being away from the rat race (Terry Gunton. Personal Interview, 2002).

Because I was born here, I have traveled a bit but never really decided to go anywhere else, there's no place quite like here (Richard Riley. Personal Interview, 2002).

In terms of further developing the state's factor conditions such that they were conducive to its emerging innovative shipbuilding and marine manufacturing industries, the Tasmanian governments' major policy initiatives involved the lobbying of federal government for the funding and relocation of key national maritime training and research facilities to the state. The efforts of the Tasmanian government were somewhat successful in achieving financial support from the federal government; the most notable of which was the funding of the first undergraduate degree courses offered by the AMC (which began in 1980) and the announcement that a CSIRO Ocean Research centre was to be established in Hobart. When asked whether Incat's development of aluminium vessel technology was viewed as being an opportunity for the Tasmanian government to provide direct assistance in the provision of more advanced shipbuilding infrastructure, Premier Lowe stated that:

The government was not prepared to bankroll Clifford's development specifically, as it was largely incremental, it moved from small scale vessels to larger and just progressively has grown since there (Doug Lowe. Personal Interview, 2002).

In terms of the state's shipbuilding industry development, the Tasmanian government's major concern surrounded the development of the state's human capital resources (i.e. educational advancement at the tertiary level) rather than the provision of advanced infrastructure for an as-yet proven technological experiment by Incat and other members of the maritime manufacturing industry. The Tasmanian government was also intent on capitalising on the state's location as Australia's southern most port, and therefore, a prime candidate for Great Southern Ocean and Antarctic research. As Premier Lowe indicates:

It was at that stage that we recognised, or I personally became very much involved in looking at, I had already been instrumental in developing the commission for marine living resources in Tasmania through the Antarctic Treaty Nation process. The next step in my judgement was to actually make sure that we made Tasmania, as far as possible, a super centre for southern oceans activity and we looked specifically at developing not so much ship building but ship servicing facilities, particularly in the Port of Hobart (Doug Lowe. Personal Interview, 2002).

The election of the Gray Liberal government in 1982 witnessed the continued support for the AMC's educational infrastructure, with the purchase of a world-class tank-testing device, one that scientifically tested miniaturised hull designs in variable weather conditions. This tank was utilised by Incat during its trials of the new wave-piercing hull designs in 1983, trials that culminated in the successful construction of an 8.5 metre prototype wave-piercing catamaran in the same year.

#### ***6.6.1 Summary of the government roles in developing the regional economy's "factor conditions" during the introductory stage.***

During the introductory stage of the TLSI cluster's life cycle, the Tasmanian governments were intent on the advancement of the educational infrastructure

supporting the state's shipbuilders and marine manufacturers, although it remained focused on the 'traditional' methods of boat design and construction. Similarly, the state government's investment in new ship-testing technology for the AMC, although state-of-the-art at the time, was also only intended to support the expedient construction of 'traditional' shipbuilding designs, not the innovative hull structures designed at Incat. As well as improving the international reputation of the state, the state government's lobbying effort to relocate the marine division of the CSIRO to Hobart was also an attempt to improve the educational and scientific infrastructure in the state's marine manufacturing industry. However, it appeared not to be an attempt to aid Incat's efforts at perfecting its aluminium hull design, an effort that was left to Clifford and his 'friendship network' of maritime manufacturers to perfect.

## **6.7 CHAPTER SUMMARY.**

This chapter provided an account of the governments' role in developing Tasmania's diamond factors during the introductory stage of the TLSI cluster's life cycle. The introductory stage of the TLSI cluster's life cycle was characterised by the arm's length relationship between the Tasmanian governments and the entrepreneurial efforts of Clifford and his Tasmanian maritime manufacturing industry 'friendship network'. Instead the Tasmanian governments focused on the reorientation of the state's economic strategy away from a reliance on industrilisation towards one based on international competitiveness and an improved reputation as a quality manufacturer of export goods. Indeed, reflecting on the early stages of his company's development, Clifford (1998) suggested that the government owned (and

ill-fated) *Lake Illawarra's* collision with the Tasman Bridge was the first and only government assistance that he received.

At the change of Tasmanian government in May 1982, Incat had achieved considerable domestic market success (largely through positive word of mouth feedback from satisfied customers), and was designing, manufacturing, and selling vessels to a number of commercial ferry services on the Australian mainland. Incat had successfully lobbied the Tasmanian government in gaining clearance for the expanding company to build new, and larger premises at Sullivan's Cove. Maintaining the company's focus on innovation, Incat's management sought to produce a wave-piercing catamaran design utilising an all-aluminium hull. A prototype vessel was successfully produced by the company, which then sought significant financial support from the Tasmanian government to commercially manufacture the new design. After some initial reticence, the Tasmanian government decided to support Incat's request for both a loan-guarantee, and a leasing arrangement whereby the new vessel would be able to generate income for the company. The loan guarantee was the turning point for Incat, and the introductory stage of the TLSI cluster as a whole, as the new wave-piercing catamarans received worldwide media coverage and excellent reviews from its operators. Incat was also fortunate enough to have their vessels highlighted during international television coverage of Sydney's New Year's Eve celebrations, an event that witnesses unprecedented international interest, and growth, in Tasmania's shipbuilding output. The following chapter analyses the state governments' role in the resultant growth stage of the TLSI cluster's life cycle.



## **CHAPTER SEVEN.**

### **ANALYSIS OF THE CASE STUDY: THE GROWTH STAGE OF THE TLSI CLUSTER'S LIFE CYCLE 1984 – 1998.**

#### **7.1 OBJECTIVE OF THE CHAPTER.**

The objective of this chapter is to provide an account of the critical incidents and interactions between the TLSI cluster and the Tasmanian government between the years 1984 – 1998. This period of time was associated with the growth stage of the TLSI cluster's life cycle, and represents the period where the TLSI cluster incorporated major technological advancements into its aluminium vessel and related production (to the stage where it was able to export this knowledge). It also represents the period where the TLSI cluster's production achieved a 40 percent share of the global market for fast-ferry catamarans (Industry Audit, 1998). As with Chapter Six, this chapter discusses each of Tasmania's diamond factors in turn, and discusses the manner in which they were advanced (or otherwise) by the interaction of the TLSI cluster and the Tasmanian governments. The chapter closes with a summary of the interaction between the TLSI cluster and the Tasmanian government during this growth stage.

#### **7.2 THE TASMANIAN GOVERNMENTS: 1984–1998.**

During the period 1984 - 1998, Tasmania was represented by four elected state governments, one representing the state's Labor Party, and three representing the state's Liberal Party. At the end of 1984 the prevailing government was Robin Gray's

Liberal government, which held office until June 1989. During its term in office between 1984 and 1989, the Gray Liberal government oversaw the implementation of three important policies that impacted upon the development of the state's shipbuilding industry.

The first was the Tasmanian government's continued support for Incat's development of the world's first wave-piercing fast catamaran, and its pledge to use such a vessel for the Tasmanian government's Bass Strait passenger service. Fundamental to this policy was the Tasmanian government's financial commitment to the new and larger premises for Incat at Sullivan's Cove. The second Tasmanian government action was the rationalisation of its departments, and the subsequent establishment of the Training Authority of Tasmania in 1986, and the Department of Employment and Training in 1987. The Training Authority of Tasmania was charged with the continued organisation and coordination of the TAFE system and the apprenticeships commission. The third government action, also in 1987, was the approval of a marine park zone at the Riverside Industrial Estate at Prince of Wales Bay, a site that Incat's management said was required for its planned expansion into the production of a larger range of fast catamaran for the world market.

In June 1989, the Gray Liberal government was removed from office in favour of a minority Labor government lead by Michael Field, which held office until February 1992. The Field Labor government was able to take office only after an agreement with a Tasmanian environment party (otherwise known as 'the Greens') enabled the two parties to seize a majority in the state parliament's Lower House. During its term in office, the Field Labor government implemented one major policy that directly

influenced the TLSI cluster's formation. The policy, known as the Tasmanian Marine Industry Plan and announced in 1989, was a capital injection of \$10 million over three years, into the state's marine industry infrastructure. This capital injection coincided with Incat's expansion at the new Prince of Wales Bay site, which included larger premises for its shipbuilding production, as well as the establishment of the company's state-of-the-art Aluminium Welding School.

In February 1992, the Field Labor government was removed from office in favour of a majority Liberal government lead by Ray Groom, which held office until March 1996. During its term in office, the Groom government undertook two major policy initiatives that influenced the development of the TLSI cluster. The first was the decision to award Incat with an 'export services' award, a measure that was to enhance the reputation of both the state and the company in terms of shipbuilding competency. The second was a series of visits (spanning the term of the government) by Premier Groom to the Prime Minister's office that aimed at lobbying the federal government for additional grants, assistance packages (most notably the retention of the Shipbuilding Bounty scheme), and international trade meetings with Japan to help Incat secure further international sales, and its future within the Tasmania.

In March 1996, the Groom Liberal government was removed from office in favour of an alternative Liberal government, led by Tony Rundle, who held office until the end of the growth stage of the TLSI cluster's life cycle. During its term in office, the Rundle Liberal government undertook three major policy initiatives that influenced the development of the TLSI cluster. The first policy was the continued lobbying of the federal government, the main focus being the retention of the federally funded

Shipbuilding Bounty. The second policy initiative was that of two planned marine parks centred in Launceston (Tasmania's second largest population centre in the state's north) and Hobart (at the southern regional town of Margate) to attract further marine manufacturing investment in the state. The third policy enacted by the Rundle government was to fund the \$8 million expansion of the Aluminium Welding School at the Incat premises that was to be amalgamated with the TAFE system as a cooperative training venture between the government and Incat's management.

### **7.3 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'FIRM STRATEGY, STRUCTURE, AND RIVALRY'.**

In terms of developing the regional economy's firms strategy, structure, and rivalry during the growth stage of the TLSI cluster's life cycle, the focus of each of the Tasmanian governments centred on the continued enhancement of the state's reputation as an innovative centre of shipbuilding and maritime expertise. Specifically, this was achieved through three main policy initiatives. The first was the Gray Liberal government's support for Incat's innovative wave-piercing catamaran design, both in terms of providing a loan guarantee for the project, as well as promising to use the new technology should the design prove to be commercially operational. The second was the approval (and the associated funding) for Incat and a number of its key supply firms to relocate to new state of the art premises at Prince of Wales Bay. The third was the marketing support given to the TLSI cluster firms by Tasmanian government politicians in their international trade missions, and by bestowing of internationally recognised awards upon Incat. Federally, the Commonwealth government undertook an initiative to utilise the AMC for a series of

internationally recognised maritime seminars that attracted prominent academics and practitioners to the state.

In relation to the policy initiating the growth stage of the TLSI cluster's life cycle, the Gray Liberal government undertook a policy that supported Clifford's aspiration to construct a new generation of aluminium catamaran with wave-piercing technology; a design suitable for the safe carriage of passengers over greater stretches of water than the traditional design could manage (Clifford, 1998). The support manifest in legislation allowing the company to build a new factory at Sullivans Cove in 1983 (to accommodate the construction of its wave-piercing catamarans), bridging finance to fund the construction of the new Incat shed, and a promise to use an Incat vessel for its Bass Strait passenger service if it proved suitable. A newspaper interview at the time made this government assistance clear:

The Premier, Mr. Gray, yesterday backed a proposal by a Hobart company to build a revolutionary wave-piercing catamaran for the Bass Strait route. The developed vessel is estimated to cost between \$6 million and \$8 million, which is considerably cheaper than a cruise ship. "Government support is crucial to its development", Mr. Clifford said (The Mercury, 1983).

The loan guarantee and the associated promise to Clifford did not represent an equity arrangement with Incat, with the Tasmanian government undertaking no direct involvement in the company's innovative processes or strategies. The Tasmanian government did, however, insist that Clifford utilise the services of a naval architect before any of his new designs could be legally constructed for commercial use; as such, the Tasmanian government can be somewhat credited with the formalisation of the relationship between Clifford and Hercus.

Clifford's designs proved to be commercially viable, and by 1986, Incat's reputation for innovation and quality had led to increased domestic sales of smaller wave-piercing catamarans, as well as larger versions of the same from the United Kingdom. Soon after the international orders were received by Incat, the company increased its pressure on the Tasmanian government to implement its second major policy, namely the provision of specific infrastructural upgrades within the state. Highest on the company's agenda was the partial funding of a new, and more technologically advanced shed to accommodate the construction of a larger aluminium catamaran. As was reported in the Mercury newspaper:

Another month should tell whether innovative Tasmanian boat builder Incat has landed another multi-million dollar ferry deal with British Sealink Ferries. However, a question mark hangs over whether it will be economically viable for the giant vessels to be built in Tasmania, or whether they will have to be built overseas. "It will depend largely on the level of support that we get from Government in setting up the facilities necessary for this type of expansion" Mr. Clifford said. The company would continue to build catamarans in Tasmania up to the size of the 30-metre vessels sold last year, but the cost-effectiveness of building larger ones in Tasmania would have to be reexamined (Togagnolo, 1986).

Given the prominence of the international orders, and Incat's resultant ability to employ a greater number of Tasmanians, the new shipyard was ready for operation by then end of 1987. At his election as state leader in 1989, Premier Field increased the Tasmanian government's commitment to the Prince of Wales Bay marine park by injection of a further \$10 million of public funds as part of his TMIP, a plan that sought to improve the reputation of the state's industry. Incat was a major beneficiary of the TMIP funding, with \$1 million offered to establish the TAFE School of Aluminium Welding at the Incat factory. The TAFE School of Aluminium Welding was designed primarily for the benefit of Incat, although it was also

designed to incorporate the needs of the remaining TLSI cluster firms in their efforts to be similarly innovative in their own product markets. Of the plan, Premier Field noted that:

The TMIP recognises that to be viable today, companies involved in ship and boat building needed to have a national and international perspective, and develop their operations accordingly. We have been building boats in Tasmania in a regular and conventional way since 1814. As we seek to establish a solid economic base for the 21<sup>st</sup> Century, nothing is more logical than to expand our marine industry (Field, 1989:2).

Central to the Field Labor government's policy was an effort to signal to the state's marine manufacturing firms that to survive in the current economic situation, they also needed to strive for international sales growth of their own. This strategy included an effort by the Tasmanian government to influence the strategic choices of the state's marine manufacturing firms. Of the TMIP, Premier Field stated that:

I think you need to create the circumstances whereby there is a greater likelihood of doing business, and I think you have to identify where you can go and go out and achieve it. I think that any government is going to have some work to do in this area; it has to develop a culture whereby there is a narrow and definite economic development role for government in a place like Tasmania. I think you have to be strategic about where you want the economy to go, and plan it, and widely communicate it to business (Michael Field. Personal Interview, 2002).

As with the Tasmanian government's actions during the introductory stage, the innovative drive characterising the industry remained with the private sector firms, with the Tasmanian government largely responsible for the facilitation of the required infrastructure to accommodate the industry's growth potential and reputation as an innovative centre of shipbuilding. As a testament to the value of the Prince of Wales Bay marine park, the general manager of Liferaft Systems and Skeel's & Perkins stated that:

We are so close geographically now that if we need assistance in an area of expertise, we would normally call on our neighbours. So, it is a very close-knit community out here I must admit. If we want specialised tooling made up we wouldn't go to somewhere in the northern end of the state, we would go to APC● Engineering [formerly Skeels & Perkins] or Riley Industrial or to Colbeck & Gunton. We would go and talk to them about it because they are as innovative as we are in their own field and have a reputation for quality and a high standard of work, so we don't need to go anywhere else (Michael Grainger. Personal Interview, 2002).

I think for us it is a family business. I can't imagine, that after being established here, there would be any reason to move. No doubt Incat had a lot of bearing on why we are here, we actually moved to [Prince of Wales Bay] because of Incat. There is just no reason to be elsewhere (Anthony LaFevre. Personal Interview, 2002).

The Tasmanian government's third major policy initiative was to include a direct emphasis of Incat's product in its international trade missions. The Tasmanian government had been somewhat constrained financially since the treasury audits in the late 1980s had revealed a considerable debt burden, and as a result, the Tasmanian government was forced to emphasise the non-financial support to the TLSI cluster where possible. As a former state Premier indicates:

The state's funds were under pressure all of the time. If we were on an overseas mission you talked where you could about Incat. I took a number of missions overseas, Japan and South East Asia, Hong Kong, Taiwan and we always had information about Incat, promoting Incat when we could. In Korea we went to see some potential purchasers and told them how much we were impressed with Incat, what a successful company it was, the product was very good and we had all the information there – our people were well informed. That sort of selling role was important (Ray Groom. Personal Interview, 2002).

In a similar initiative, the Tasmanian government also sought to officially reinforce the innovative reputation and success earned by the TLSI cluster's hub firm Incat, by bestowing upon it an award for export service to the state. Of the rationale for the export award, Premier Groom noted that:



A lot of the companies and governments around Asia particularly are very impressed with these sorts of things – “Won this big award, must be a good company.” It gives the company status, as they are not handed out lightly. ● Obviously we were impressed with the development, officials were impressed with what Incat was doing at the time, and they won that award. But, we did play a part in helping to promote Incat at the international and national level – through government – and when a company is recognised by government as being a first class operation it certainly helps them sell their vessels (Ray Groom. Personal Interview, 2002).

It is apparent that the Tasmanian government maintained their focus on the innovative Incat product, with a passing acknowledgement of the innovative success of its accompanying supplier firms. As such, the Tasmanian government continually endeavoured to maintain the competitive pressures within the TLSI cluster firms to maintain their innovative output and reputation as sophisticated suppliers that had resulted in its globally successful production:

We obviously recognised Incat as a major business in the state with huge potential and we did understand that there would be other businesses that would be part of that success and would develop alongside Incat. If you provide support to any large industry or large company you will find it does benefit lots of other little companies around the place, providing the essentials for that one central business. I just felt that if you could keep this business on the right path and do what we could to back it then there would be other benefits for the peripheral businesses, and indeed the state as a whole (Ray Groom. Personal Interview, 2002).

During 1988, Australia’s bicentenary year, in addition to the Tasmanian governments’ initiatives, the federal government undertook measures to improve the nation’s reputation as a global innovative shipbuilding centre by organising a series of international seminars and workshops under the banner of “Maritime ’88” at the AMC. The importance of the occasion was highlighted by the presence of the Secretary General of the United Nations, Mr. Javier Perez de Cuellar, whom acted as the official host of the series. Of the seminars, the Premier of the day noted that:

It really was a boon for the state, although it was marketed as a national event. Clifford had recently sold a number of his larger vessels overseas, with my and the TDA's help by the way. Word of mouth in the UK, and continental Europe for that matter, about Incat's ferries, and the world focus on the seminar in Launceston added more prestige to the state's industry – no doubt about it. I think it was soon after the close of the seminars that quite a few orders were generated for Incat ferries (Robin Gray. Personal Interview, 2002).

The federal government's initiative, therefore, indirectly benefited the TLSI cluster firms by focusing the world's maritime industry on the AMC, and the manner in which it was involved in the aluminium ferry revolution that was occurring in the state's shipbuilding and maritime manufacturing industries.

### ***7.3.1 Summary of the government roles in developing 'firm structure, strategy, and rivalry' during the growth stage.***

During the growth stage of the TLSI cluster's life cycle, Tasmania's governments concentrated on the continued enhancement of the state's reputation as a world-class centre of shipbuilding excellence, whilst leaving the innovation process itself under the management of the private sector firms. The actions and policy initiatives undertaken by consecutive Tasmanian governments served to enhance the state's maritime reputation in three main ways.

Firstly, the Gray Liberal government's financial guarantee to the entrepreneurial Clifford (and promise to utilise his new wave-piercing vessels) enabled him to design and trial his new catamaran design. Importantly, and as a precursor to the formation of Incat, the Tasmanian government had recently introduced legislation that required all such innovations pass an inspection of a qualified naval architect before any applications for funding could be granted.

Secondly, the state Premiers, through the TDA, also undertook numerous international trade missions, and were actively involved in the sales contract negotiations with Incat's potential international customers, a move that helped to reinforce the image of Incat's products to the international market for fast ferries. The Tasmanian governments' efforts also influenced Incat's supplier firms to similarly (and continually) innovate their product offerings, such that they remained a preferred supplier to Incat, and also that they met the expectations of international marine customers interested in purchasing related products from the state.

The reputation building efforts undertaken by the Tasmanian governments necessitated it implementing its third policy initiative to fund the infrastructural support required. In particular, this equated to the funding the newly developed aluminium training courses at the TAFE School of Aluminium Welding, the continuation of funding for trade missions, the development of consistent marketing message for the TLSI cluster firms, and the facilitation of the growth potential of Incat (by partially funding the company's relocation costs to larger premises with more advanced capabilities). Perhaps of greatest note was the Tasmanian government's efforts to rezone the council's land at Prince of Wales Bay to incorporate larger and more advanced shipbuilding sheds (for Incat), and later, the establishment of a marine park for Incat's equally innovative suppliers to relocate to.

As part of its Prince of Wales Bay marine park policy initiative, was the Tasmanian government's agreement to incorporate the TAFE system into Incat's Aluminium Welding School, reinforced the status of the training courses offered by the school,

and ensured that they were directed by the needs (and interactions) of the TLSI members:

As far as I am concerned if there is a change in industry and industry wants to change, we change with it. As I said with our teaching staff they just don't stick to what they think they know the best, they are willing to learn and go through retraining themselves and do anything. If all of a sudden it became an industry where we had to be sail makers, we would do it. As long as somebody gave us the skill to be able to pass on. So, if Life Raft Systems decided they needed 600 people to sew their life rafts, they would need training in it, I would go and see Mike Granger and say, "Can you train some of our people to do this?" At the moment I am looking into the plastics industry, there is a new training package just been released in that (Terry Hall. Personal Interview, 2002).

#### **7.4 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'DEMAND CONDITIONS'.**

In terms of developing the regional economy's demand conditions during the growth stage of the TLSI cluster's life cycle, the focus of each of the Tasmanian governments was on ensuring that the transactions between the TLSI cluster members and their international customers were negotiated and finalised as efficiently as possible. The Tasmanian government's focus on the facilitation of sales into the international market was justified on two grounds. First was the importance of the TLSI cluster's ability to generate employment and incremental and multi-million dollar export revenues for the state. The second was that the TLSI cluster's domestic market was relatively insignificant, accounting for approximately five percent of its total sales (Industry Audit, 1998).

During the Gray Liberal government's term in office, the Premier and his department of economic development (the TDA) undertook a major role during the six-month negotiation process with the manager of the UK shipping line British Sealink, Mr. Jim Sherwood. Of the government's role in the process of securing Incat's initial international sales, the Premier Gray stated that:

I think at that stage the TDA were carrying a lot of the peripheral marketing costs involved in getting Incat together with Sealink. It was never shown up as a direct grant to Incat – because they were paying up front – I think the fares and expenses of people tracking backwards and forwards. This bloke Sherwood, to the best of my memory, it was TDA that attracted him to coming to talk to us about organising the terms of agreement for the purchase of a couple of Incat's boats (Robin Gray. Personal Interview, 2002).

The Tasmanian government's marketing of Incat's product extended beyond the negotiation of contracts with specific international customers. At each opportunity the Premier, or his ministers, would extol the benefits of the Incat range of product to their counterparts overseas. For example, numerous ex-Premiers state that trade missions often centred on Incat's innovative production:

If we were on an overseas mission you talked about Incat. You had the information. Clifford wasn't on the visit but we had people there who were well informed about it. That sort of selling role was important (Ray Groom. Personal Interview, 2002).

We sang the Incat song and extolled the virtues of their ships at every opportunity so there was that back up but I think that it would be true to say that the government *per se* was instrumental in really bringing these overseas contracts – I think that really is Bob Clifford's – that is what he has been successful in bringing about. I don't think it would be fair to say that the government had been responsible for much of that (Tony Rundle. Personal Interview, 2002).

The Groom and Rundle Liberal governments also focused on two other important policies that helped to raise the profile of the state's shipbuilding industry, although largely through further promotion, and utilisation, of Incat's catamarans. The Groom Liberal government's export award, presented to Incat in 1994, was an effort to further support its claims that Incat was a producer of quality vessels for the world market. Of the award, Premier Groom notes that:

A lot of the companies and governments around Asia particularly are very impressed with these sorts of things – “Won this big award, must be a good company.” It gives the company status, and they are not handed out lightly. ● Obviously we were impressed with the development, officials were impressed with what Incat was doing at the time, and they won that award. But, we did play a part in helping to promote Incat at the international and national level – through government – and when a company is recognised by government as being a first class operation it certainly helps them sell their vessels (Ray Groom. Personal Interview, 2002).

It is clear that the Tasmanian government was aware that bestowing an official award upon its leading exporter was useful in generating increased and more sophisticated demand for that company's product amongst international customers, especially those in the Asian region; a market of significant interest to Incat's management at the time (Clifford, 1998). It is also notable that the Tasmanian government's efforts to communicate the world-class status of Incat's production also had the effect of driving other TLSI cluster members to continually prove and improve their innovative abilities:

We supply a lot of equipment to Canadian ferries, the Philippines, and we are hoping to get a big order from America... We are known as a supplier to Incat, and on one of these Canadian orders, we had to develop an aluminium manifold that was as sturdy as the traditional design, but had to be half the weight. ● Our design worked, and has now been adopted by a lot of other companies around the world and is a fairly complex arrangement; we just had to keep the weight down to get that order (Richard Riley. Personal Interview, 2002).

I'd say yes, for sure, by encouraging Incat in particular and some of their other sub-contractors, definitely had a marked impact on the development of Tassie's marine business. However, I don't think the impact of the government's actions would have happened at all, or have been so big if Incat hadn't been around at the time to spur us all on (John Muir. Personal Interview, 2002).

The Tasmanian government also influenced the TLSI cluster's demand conditions by way of undertaking a leasing agreement with Incat for the use of one of its vessels for the Bass Strait passenger service. The lease itself was a boost to Incat's reputation as a producer of people and cargo carriers, given the Tasmanian government had now reinforced its international trade mission dialogue with action that underscored its confidence in Incat's product. The Minister for Transport at the time, Premier Groom, said of the transaction:

I phoned Bob up and said, "Look, we need to get this thing cracking, what do we need to organise a vessel? How can we best do it?" He said, "What are you doing tomorrow?" This was a Friday and I said, "I can find time tomorrow." He said, "I'll come to your office at 7am in the morning to see if we can do a deal." Actually I was a minister at that stage, I had been Premier – I was then the Minister for Tourism, so I arranged to go in with Tony Rundle who was then the Premier and Clifford arrived and he had some fellow from Canada who was a potential purchaser. It was Bob Clifford, Tony Rundle (the Premier), myself (as the Tourism Minister responsible for the TT Line) and this other bloke who didn't know much about the arrangements. We worked out an agreement there and then and I said, "Bob, you will need to see your lawyers." He said, "We don't need the lawyers." He signed an agreement there and then and I said, "You will probably need your company's stamp on it to make it official." We drafted it and he went and got his company's seal. So, it was done in a couple of hours – chartering a vessel for the Bass Strait run (Ray Groom. Personal Interview, 2002).

Premier Rundle endorsed the lease agreement even though the suitability of an Incat vessel for the waters of Bass Strait was yet to be established commercially. Despite the questions and concerns surrounding the suitability of twin-hulled catamarans in waters that regularly exceed four metres, Tony Rundle recalls that:

We did charter the first Incat vessel that was run across Bass Strait – that was in I think '97 from memory and we know there has been a lot of debate since about whether that was successful. But, we undertook the lease for two reasons, one because we knew there was an unfulfilled tourism capacity, or capacity that couldn't match up to the demand over those critical months before and after Christmas. We thought that it was obviously going to be a big boost for both the tourist industry, and for the shipbuilding industry, when we get some other transport on Bass Strait, so that is why Devil Cat came on the run and I think to some extent it was a success (Tony Rundle. Personal Interview, 2002).

We were bringing in an extra 25-30,000 passengers over that summer window. We have then had the debate go on about whether they were suitable, the reliability factor was a problem, but certainly in 1997 when we made that decision was two-fold – (a) to help the tourist industry and (b) to help Incat further its business profile (Tony Rundle. Personal Interview, 2002).

#### ***7.4.1 Summary of the government roles in developing the regional economy's 'demand conditions' during the growth stage.***

During the growth stage of the TLSI cluster's life cycle, consecutive Tasmanian governments again focussed on the improvement of the TLSI cluster's reputation in the international market for fast ferries, in turn generating increased levels of sophisticated demand for the state's innovative maritime output. Firstly, consecutive Tasmanian governments were intent upon involving themselves in the export-orientated sales process, from the generation of international demand for Incat's vessels (through overseas trade missions, and the bestowing of export awards on the company), to the sales negotiation and contraction process itself with Incat's international customer. Secondly, the Tasmanian governments' policy to endorse Incat's 90-metre 'people and cargo' catamarans by leasing one for its Bass Strait passenger and cargo service, was an effort (albeit a potentially risky one) to send a



message to the international market that the technology was available from Tasmania, and that it was ready for sale.

## **7.5 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'RELATED AND SUPPORTING INDUSTRY'.**

In terms of the developing the regional economy's related and supporting industry during the growth stage of the TLSI cluster's life cycle, the Tasmanian governments concentrated on four separate issues. The first was the continued rationalisation of the Tasmanian government's departmental structure; a focus that would attempt to lower the barriers to the effective governmental facilitation of Tasmania's private sector firms. The second was the continued focus on the state's tourism potential, and the utilisation of an Incat ferry for the Bass Strait passenger service. The third, and perhaps most significant policy development, was the establishment of the marine park at Prince of Wales Bay at which a number of the TLSI cluster firms were to locate their operations. The fourth, and directly related to the marine park development, was the establishment of the TAFE infrastructural support at Incat's newly built Aluminium Welding School.

By 1984, one of the main focuses of the Gray Liberal government was the reduction in the numbers, duplications, and costs within its 58 government departments:

At the time, the Tasmanian government was overrun with departments, none of which knew or cared what the other was doing. They only cared about how much money they were getting. Tassie has always struggled to raise enough money to run its government, and these blokes were wasting money by doing stuff that had already been done by others, and it was time to get rid of the excess. So around 1985 we began to change the structure and numbers of departments, the training ones you mentioned were very important in terms of helping the private sector tell us what it needed (Robin Gray. Personal Interview, 2002).

As a result of the rationalisation process undertaken between 1984 and 1987, a number of departments were created. Of greatest note to the TLSI cluster was the creation of the Training Authority of Tasmania in 1986, a body that oversaw a number of the state's training programmes, including the amalgamation of the TAFE system and the state apprenticeships commission. A related department, established one year later and entitled the Department of Employment and Training, was established to better coordinate the activities of government concerned with the monitoring and updating of the training requirement of the state's private sector firms. The restructuring process was an incremental one, and remained in place under the Field Labor and Groom Liberal governments:

As far as the state's resources was concerned, the structure of the Tasmanian public service was horrific when we got in there, there were 52 government agencies and therefore the bureaucracy was totally unyielding and incapable of bringing about change in the state... so that the government departments become more project based rather than procedural based. At that time a big advantage we had was that virtually no one was in their position in 1990 that was there in 1989 because we reduced the agencies from 52 to 18 and virtually every one of those, the heads of agency, had been in that agency in that area. So, therefore there wasn't that level of entrenchment or vested interest and that enabled there to be greater change than there otherwise would have been (Michael Field. Personal Interview, 2002).

There was a predecessor to the Tasmanian Training Authority that brought many elements together, in one body, to organise training in the state and to supervise or oversee efforts in training in the state, to upgrade training in a number of areas and that was an issue that commenced in '92 and we took office as government in early '92 so that was certainly part of our efforts. We established that department, Employment, Industrial Relations and Training, to bring all those different elements together, as one state entity. Tasmanian Development and Resources was a department I established when I was Premier and responsible for this particular area of activity. Again we saw a need to upgrade that developing area. From time to time you need to bring in some new ideas and to regenerate some interest and activity and enthusiasm and that was part of that – apart from some rationale in reorganising the departments and bringing some resource elements into it as well as the development aspect of it, that was quite a major issue at the time (Ray Groom. Personal Interview, 2002).

During the restructuring process, the Gray and Groom Liberal governments were concerned with the removal of duplication within the government's departments, and the improvement of its ability to identify and provide for the private sector's needs, in turn improving the state's employment potential.

One need that existed in terms of the state's tourism industry was the ability of the government to provide greater passenger numbers for the state's Bass Strait passenger service. The passenger service that existed at the time was essentially an overnight one, with tourists (and other users of the service), required to sleep on the vessel during the crossing. The Tasmanian government, through its lease of an Incat fast ferry that could complete the journey in a mere four hours, was an attempt to increase the number of services, and therefore passenger movements, between Tasmania and mainland Australia. The Tasmanian government, however, were keen to privatise the Bass Strait passenger service, but recognised that as a related and supporting industry to the TLSI, was an excellent opportunity to promote and support Incat's growing reputation. Of the passenger service, Premier Gray stated that:

We were initially reluctant operators of a passenger service across Bass Strait, we really didn't want to do it but we had to do it and we recognised that if we didn't it was going to be disastrous. We decided that we could get more tourists to Tassie if we had more services, and the Incat option seemed like a natural extension of what they were trying to achieve. We hoped that eventually, someone else would run a private enterprise passenger service, someone like Incat (Robin Gray. Personal Interview, 2002).

The Tasmanian government, therefore, were keen to satisfy the needs of the state's tourism industry whilst concomitantly broadening Incat's reputation as a 'people and cargo' carrier, a niche market that the company had identified as a major growth opportunity. During the same period, the federal government was also introducing

new government departments charged with the facilitation of private enterprise in a rapidly globalising economy. Two departments focused on facilitating the efforts of the country's export traders were created in the 1986: Austrade and the aforementioned NIES (now known as AusIndustry). The newly created departments have been received positively by the TLSI cluster firms, whose managing directors praise for augmenting the Tasmanian government's efforts at promoting their businesses overseas:

AusIndustry have actually improved themselves a lot in recent times – made things a lot easier to apply for. They also promote their product more. We only knew about the tax concession because of our accountant back in the old days but today there is information that comes on a regular basis. We have actually been asked on behalf of AusIndustry to say what I think, and I am quite happy with the services and especially with the fact that they have sought us out and asked us to look at a grant, which we did over time. It is all beneficial really (Mark Colbeck. Personal Interview, 2002).

We have used Austrade on a number of occasions, mainly because of our overseas contracts. We have used them, used their people in other countries to assist us with language difficulties and unique market issues, as in the Italians are different to deal with than the Greeks and the Greeks are different to deal with than the Scandinavians – and they are really different, we have learnt that over the years, again with our own experience (Andrew Lafevre. Personal Interview, 2002).

Arguably, the most important Tasmanian government facilitation during the growth stage of the TLSI cluster's life cycle was the policy that allowed Incat to relocate to a new and larger site at Prince of Wales Bay in 1987. By this time, Incat had begun to produce vessels that exceeded 90 metres in length and the Incat shed at Sullivan's Cove was inadequate to support the company's growth potential (Clifford, 1998). As part of its policy implementation, the Tasmanian government also provided an opportunity for Incat's suppliers to relocate their operations to adjacent lots over the ensuing years. The offer was accepted by a the majority of the TLSI cluster firms, whom now site the following advantages to the move:

We are so close geographically if we need assistance in an area of expertise, we would normally call on [the cluster firms at Prince of Wales Bay]. So, it is a very close-knit community out here I must admit. If we want specialised tooling made up we wouldn't go to somewhere in the northern end of the state, we would go to Apco Engineering [once Skeels & Perkins] or Riley Industrial or to Colbeck & Gunton. We would go and talk to them about it because they are as innovative as what we are in their own field and have a reputation for quality and a high standard of work so we don't need to go anywhere else and we use them. Because we are all involved in this marine industry they understand very quickly our requirements and we understand very quickly what they can do so it does work pretty well (Michael Grainger. Personal Interview, 2002).

●Originally when we first started the business we worked out of my house – we had a workshop underneath. We then moved out to South Hobart where we shared a factory, we then moved to Pearl Street when we first started with Incat and then this building at Prince of Wales Bay became available and it was an ideal location for our interaction, especially when they were building the vessels straight across the road (Terry Gunton. Personal Interview, 2002).

The company was formed in 1992, at the request of Incat really, in the sense that they were purchasing marine evacuation systems from overseas and they were of the opinion that the product that they were purchasing wasn't as good as it could have been, in the sense that it was heavy, took up a lot of space, things that are detrimental to fast ferries. (Michael Grainger. Personal Interview, 2002).

The relocation of the cluster firms to a common geographic location served to increase the level of communication, improve the innovative capabilities, and resultantly increase the sophistication of supply between the cluster firms. The majority of the suppliers' relocations to Prince of Wales Bay occurred under the Groom and Rundle Liberal governments, however, even during the late-growth stage of the TLSI cluster's life cycle (between 1992 and 1996) the policy to relocate Incat's suppliers to adjacent premises remained focused on the support of the cluster's hub-firm:

If you support any large industry or large company you will find it does benefit lots of other little companies around the place, providing the essentials, and easing the pressures on production for that one central business. But, the sort of suggestion that we had in mind developing a cluster of businesses or industries that wasn't, I suppose

in all fairness, the way that certainly I saw it, as a minister and later as Premier. I just felt that if you could keep this central business on the right path and do what we could to back it then there would be other benefits for the state (Ray Groom. Personal Interview, 2002).

I think with Incat we were probably thinking the firm and the spinning off that would occur. Some of the spinning off that would occur were with the skilled operatives that would go there and work, as they do in many companies, engineering companies dealing with steel fabrication, the bright ones sort of saying, “Here I can do this,” and off they go and spin off little embryonic operations that will grow. I don’t think we set out to build a shipbuilding cluster but I think it was always apparent that if Incat was successful it was going to spawn a range of other industries – some of them actually building boats some time down the track, some of them developing powerful international industries as a result of the expertise they gathered up as they worked over the years for Incat and I think Life Raft Systems is probably a good example (Tony Rundle [speaking as his time as a minister in the Groom government]. Personal Interview, 2002).

Up until 1996, therefore, successive Tasmanian governments’ focus remained on the facilitation of Incat’s future production requirements rather than on the development of the marine manufacturing industry as a whole, which remained very much in the hands of the TLSI cluster’s entrepreneurs. Premier Rundle, whose Liberal government held power between 1996 and 1998 was the first to recognise the synergistic relationship that had developed between Incat and its suppliers, noting that a critical mass of innovative marine manufacturing competency had been developed within the state at the Prince of Wales Marine Park:

I think it was partly due to Incat’s expertise and international recognition and partly because of the expertise that we had developing in training of skilled people and also the growing number of companies who were out there doing internationally competitive and technically innovative products and services. Colbeck & Gunton, they are a company that sells overseas, Richardson & Devine, I’ve talked about, Muir Engineering, they have been on the international market now for a quarter of a century or more, etc., etc., etc. So, it was a logical bringing together of all of the expertise and skills that had been created over a period of probably 20 years – and they had reached a sort of critical mass, at a point where you really did have something to offer because

they were companies that you could be confident in, had the expertise and there was a diverse range of maritime products and expertise that gave you a very marketable package. That was basically the result of an evolutionary cycle rather than say the government coming in at day one and saying, “This is what we are going to do.” It sort of evolved through various brilliant individuals, some help from government and then we arrived at a point where we thought we had critical mass (Tony Rundle. Personal Interview, 2002).

### ***7.5.1 Summary of the government roles in developing the regional economy’s ‘related and supporting industry’ during the growth stage.***

During the growth stage of the TLSI cluster’s life cycle, Tasmanian governments concentrated on its continued support for Incat, although its policies to enhance the reputation of the state’s shipbuilding industry did encourage the other cluster members to innovate in accordance with the international success enjoyed by Incat. Firstly, the Tasmanian governments sought to maintain their support for Incat’s expansion, especially in times where the company’s management indicated their willingness to move interstate should they not receive certain levels of public support. Perhaps the most notable action undertaken by the government was the establishment of the Marine Park at Prince of Wales Bay, which directly supported Incat’s expansionary needs, but also resulted in the establishment of an ‘innovative milieu’ for the region’s marine manufacturing industry.

Secondly, the rationalisation of the Tasmanian government departments resulted in the removal of the red-tape barriers that existed between the Tasmanian government and the private sector, allowing the government to ascertain the private sector’s requirements for growth. Federally, the Tasmanian government’s rationalisation and reorganisation of its departments provided private sector firms with access to the

federal government's knowledge of international trading (through Austrade), and its understanding of the importance and practicalities of business networking (through the NIES).

## **7.6 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'FACTOR CONDITIONS'.**

In terms of the developing the regional economy's factor conditions during the growth stage of the TLSI cluster's life cycle, the Tasmanian governments concentrated on the further advancement and specialisation of the training infrastructure available to marine manufacturing firms within the state. During the introductory stage of the TLSI cluster's life cycle, the existing training facilities were based around the apprenticeship scheme, and dealt with the traditional methods of marine manufacturing. The growth stage of the life cycle, however, required a reinvestment in, and reorganisation of, the Tasmanian government's training infrastructure. At the beginning of the growth stage in 1984, the incumbent Gray government had recognised the potential inherent to the state's 'new' industry, but mainly in terms of its employment potential. As noted in Chapter Six, Premier Gray stated of the industry that:

I think we saw Clifford as one opportunity amongst many– but I don't think it was ever thought, "We could become a grand shipbuilding nation of the world?" ... I think it was – "Let's see show if this one goes and we will get on with the next one then". It wasn't any great perception of this is going to be a marvellous thing. We didn't have a dream that we were going to be building great shipbuilder's names (Robin Gray. Personal Interview, 2002).



One of the most important training aspects to occur under Gray's Liberal government was the establishment of the Training Authority of Tasmania in 1986, which fundamentally altered the nature of the state's apprenticeship scheme. Instead of the Apprenticeship Commission operating independently, the Training Authority of Tasmania was set up to incorporate the resources of the TAFE infrastructure in the training and development of the state's trade employees. Incat's work with aluminium hulls was so innovative, that the formal system of education for the marine manufacturing industry had no courses dealing with such expertise.

... it was part of a real concerted effort on the part of the government to better organise the government's interaction with the private sector - that was our major policy - that was what we were about - it was trying to create employment (Robin Gray. Personal Interview, 2002).

The change of regional government in June 1989 was accompanied by a continued effort to capitalise on the success of Incat's new catamaran designs. The newly elected Field Labor government's first major policy surrounding the TLSI cluster was that of the Tasmanian Marine Industry Plan (TMIP), which was formulated to provide \$10 million over three years to improve the educational factor inputs and infrastructure for the industry:

Well, it was a perception that it had a great deal of potential but there was a perception that there wasn't a skills base to enable it to flourish and therefore it was a view taken that there had to be an integrated approach. I think the most significant thing that happened was enabling the technical college to train on site because there were so many people who needed to be trained, in aluminium shipbuilding, which enabled it to grow much faster than it otherwise would have (Michael Field. Personal Interview, 2002).

Mr. Hall, the manager and course coordinator of the TAFE Aluminium Welding School, recalls the lack of skilled in aluminium construction and welding during Incat's expansion in the early 1990s:

It began in 1990, Easter time, way back then, Incat started in the car ferry business and probably towards the end of '89 they rose from about 30 employees to 300, and at that stage there was no real expertise in aluminium welding and fabrication. So, then in '89 they moved out here, which is the prince of Wales Bay site, and built a couple of halls and then they had to try and employ people. Well, they were employing whomever they could get. They were pastry cooks and whatever they may be, brickies, anybody that wanted to walk through the door, they would grab. Their ambition at the time was to just skill them up and afterwards, be able to produce a boat (Terry Hall. Personal Interview, 2002).

As such, the strategy driving the TMIP was focused on the creation, and protection, of the state's employment within the growing industry, rather than a concerted effort at promoting and facilitating the idea of an industrial cluster. An advisor to the Field Labor government indicted that:

Our policy was fairly pragmatic, in my view. There was a chance to build an industry here, there were perceived impediments to the growth of that industry, the government intervened to try and lessen the impediments and enable there to be growth. The Tasmanian government's greatest focus was to ensure the continued growth of Incat as a "novelty" job-creating venture for the state. Job creation was always the government's highest priority (Bob Rutherford. Personal Interview, 2002).

Of particular note, however, is the realisation of the Field Labor government that the aluminium-based technologies developed by Incat (and their maritime manufacturing colleagues) required similarly innovative policy initiatives, policies that involved the specific funding of aluminium welding courses for the state's labour market. Premier Field states of this policy realisation that:

Incat had begun to show real success in the development of their aluminium hulls, with sales coming from left, right, and centre. The Incat success was driving the industry by this stage, and looked to be the source of its future growth. The problem that presented itself to us was the fact that the skill of aluminium workers was rare. So, developing that skill base was critical to the industry's success, and was an impediment to growth so therefore the government had to intervene to provide those skills, not to provide so much actually, but to facilitate the development of it (Michael Field. Personal Interview, 2002).

Again, the Tasmanian government remained reactive to the needs of the industry cluster, and provided the necessary training infrastructure after the need was made apparent by the cluster firms. Perhaps more importantly, the government's policy development was based on the removal of impediments to the TLSI cluster's growth, not on the determination of how the growth itself should occur, which was left to the managers of the cluster firms. The method by which the training needs of the cluster were communicated to the Tasmanian government, through Incat's periodic threats to relocate its operations to another state, appears to have been congruent with the influence that Incat had with the Tasmanian government as one of the state's largest employers.

During the first months of his government, Premier Field undertook an audit of the state's treasury, which found that the state was in the midst of a major financial crisis. As Premier Field recalls, his government's policy development during his Premiership was somewhat influenced by the financial crisis that had befallen the state:

From my point of view there were a couple of major distractions – one, it had to be my obsession as Treasurer, and Premier, to deal with the financial crisis, and if you want to examine it was well documented, the level of that financial crisis, but the figure that stuck in my mind was that in 1989, when we did the budget projections for the following year, the gap between income and expenditure on delivering on the same policy basis was \$279 million which at that time was nearly 30% of the current budget.

So, this was a huge gap between expenditure and income which had to be dealt with and therefore that distracted me – it meant the thinking in this area wasn't done enough by me because of my obsession quite rightly with dealing with that crisis (Michael Field. Personal Interview, 2002).

In light of the financial crisis, and the importance of Incat as an employer within the state, the Field Labor government undertook a number of its efforts based upon the state's ability to formulate sustainable policy initiatives. As such, it would appear that the Tasmanian government's policy initiatives were efforts to sustain and protect employment in the state's shipbuilding industry, not to specifically facilitate the growth of industrial clusters. The Field Labor government, therefore, was somewhat focused on the provision of supportive measures that, although beneficial to the TLSI cluster firms, were of low cost to the treasury. One strategy in particular that gained prominence was the Premier's direct involvement in the generation of international sales for Incat's product. In particular, Premier Field made himself (and the TDA) available for on-site visits to the Incat factory with Clifford and his potential customers, and where possible, made the offices of the Premier available for the continued negotiations of a potential sales contract. In addition, and where possible, the Field Labor government also invited its federal parliamentary colleagues to visit the Prince of Wales Bay Marine Park, both to secure additional federal funding for Incat and the Aluminium Welding School, and to generate brand equity for the TLSI through highly publicised demonstrations of government support for its product. Of this strategy, Premier Field notes that:

With potential customers that happened more than once. I was Premier when we did that but there were other levels that it happened too, at bureaucratic and at a political level. So, if there were visitors that Bob wanted to show, "Yes, the government is supporting me." There were visits out to Incat, they were making sure Hawke, when they got in, Hawke and Keating if they were around, bang, and they were out there. There were delegations to Keating so there was all that sort of stuff as well as working

with people to ensure that the training needs and all that sort of thing was met. We did as much as probably any Tasmanian government could rationally do with the funding we had available (Michael Field. Personal Interview, 2002).

With the change to a Groom Liberal government in February 1992 came a renewed effort to further streamline the numbers and scope of the Tasmanian government departments. The Premier of the day, Ray Groom, sited that the further restructuring of the government was based on more than just the need to reduce costs and remove duplication. In addition to this, was the Tasmanian government's perceived need to improve the innovative capacity of the government departments to serve the needs of the state's private sector firms. Of his government's restructuring process, Premier Groom commented that:

The Tasmanian Development and Resources was a department I established when I was Premier. We established it so that a number of other departments dealing with employment, industrial relations and Training, could be brought together, as one state entity. Again we saw a need to upgrade that developing area. From time to time you need to bring in some new ideas and to regenerate some interest and activity and enthusiasm and that was part of that – apart from some rationale in reorganising the departments and bringing some resource elements into it as well as the development aspect of it, that was quite a major issue at the time (Ray Groom. Personal Interview, 2002).

The restructuring process also served to support the Groom Liberal government's policies that were aimed at maximising the state industry's economic growth potential, of which the marine manufacturing industry received particular attention, as Premier Groom notes:

● Obviously we saw a need to encourage any industry where we had some special advantage. Look at the industries where we have an advantage – I think we are a maritime state – being an island state, it is particularly relevant to Tasmania and we saw this as something which had potential. You take into account all the expert advice you can receive – we engaged consultants in some areas to get some advice as to what we might do to help, recognising all the time that largely it is a private enterprise operation and they are largely dependent on their own skills and abilities (Ray Groom. Personal Interview, 2002).

It was during the Groom Liberal government therefore, that the Tasmanian government recognised that the state's shipbuilding industry's success was based on a particular 'special advantage' inherent to the state. It is also notable that the Tasmanian government recognised that it had a rather limited role to play in encouraging the industry to maintain its innovative character, and that the success of the cluster's firms in the international market remained "largely dependent on their own skills and abilities" (Ray Groom. Personal interview, 2002). The statement also recognises that a regional economy may have a latent set of 'natural competencies' that can remain dormant for quite a number of decades (e.g., the Tasmanian shipbuilding industry accounted for a nil share of the international trade for shipbuilding during the period 1950 to 1970) but can be reinvigorated through the marketable ideas of a small number of entrepreneurs. It also suggests that the government perceived that it was the maritime industry as a whole that was capable of driving the region's economic growth, not merely the shipbuilding industry that forms one distinct subset of the maritime industry.

The change of the Tasmanian government's leadership in March 1996, from a Groom to a Rundle Liberal government, witnessed the continued effort by the Tasmanian government to remove the barriers of economic growth posed by the human capital shortfalls in the state's labour market. As part of the Tasmanian government's policy that enabled Incat to move to new and larger premises at Prince of Wales Bay, the new Aluminium Welding School (with TAFE support) was similarly relocated, with new state-of-the-art equipment included as part of the Incat complex. The policy was not without its problems, however, given that the Prince of Wales Bay site was not correctly zoned for the purposes of establishing an industrial development of the

size required by Incat. In order to allow the development to go ahead, Incat was required to conform to a number of local government regulatory requirements and applications for the rezoning of the land, a process that could have potentially lasted for several months. Given the importance of Incat's relocation to the state's economic and employment growth, the Tasmanian government's issued fast-tracked legislation to overcome the local government's applications requirements. Of the situation, the Premier Rundle states that:

We had to deal with quite a few planning issues there. I think there was a public road, or something, right in the middle of the complex and we had to have the status of that road changed. That required legislation. So, the TDR worked with local government and with planning authorities to try and speed up and facilitate the creation of that site down there. That was the normal difficult bureaucratic conundrum to entangle and I think we did that fairly quickly and got that through the parliament and got him on the road (Tony Rundle. Personal Interview, 2002).

A major initiative, funded by the Tasmanian government, was to allow Incat to use the labour of the Aluminium Welding School to produce the parts it required to complete its vessels. As noted by then Premier Rundle, the nature of the human capital barriers to the TLSI cluster's growth was an enduring one that needed innovative government policy to mitigate, given the size of the state's population:

The big problem was that Bob Clifford was always faced with a skills shortage here, a skilled worker shortage here in Hobart. The fabrication of marine grade aluminium is a very specialist field, and obviously the technical demands on a shipbuilder to be producing a high speed high are quite high, may be not as high as the aircraft industry but certainly approaching that. Therefore to get skilled people was important and the decision was made to have an annex of TAFE right next door to his shipyard and construction facility, and that we would train some of his people, apprentices and others, on the job and that was a well equipped factory and Bob Clifford has always spoken highly of it (Tony Rundle. Personal Interview, 2002).

After meetings with Incat's management on the issue, the idea that the Aluminium Welding School's training should include practical courses in production of the required parts for Incat's catamarans gained almost immediate support. Again, it was after the opportunity (or indeed 'need') was identified by the cluster firm and presented to the Tasmanian government, did the government examine the issue, and provide the legislation and funding required to satisfy the request. Interestingly, the government's actions received bipartisan political support, both from the state's opposition party and the incumbent federal Labor government:

... we were certainly aware of the fact that there were difficulties getting skilled people and the Education Department and TAFE made a successful submission through the Education Minister to allow the school's training courses to include the construction of catamaran parts for Incat to use, so that is how it happened. We accepted the evidence, and the need, and ever since that has gone on there we have had nothing but good reports. It has also had bipartisan support, with the Labour Opposition at the time supporting it, and obviously the Federal Government did. Simon Crean [a member of the federal Labor Party] was down here for the opening of that facility so it had very good political acceptance (Tony Rundle. Personal Interview, 2002).

#### ***7.6.1 Summary of the government roles in developing the regional economy's 'factor conditions' during the growth stage.***

During the growth stage of the TLSI cluster's life cycle, the Tasmanian governments facilitated the advancement and specialisation of the regional economy's factor conditions by concentrating on the removal of the major barriers to the TLSI cluster's continued growth, most obviously characterised by the scarcity of suitably educated labour. Interestingly, the Tasmanian governments did not take a proactive role in the determination of the industry's educational requirements, but rather provided the infrastructural support (i.e. funding and legislation) required by the industry after it



was identified as a necessity for continued growth. The physical infrastructure provided by the Tasmanian government (i.e. the building and equipment at the TAFE Aluminium Welding School) was similarly determined by the firms involved in the TLSI cluster, as was the course content taught therein. The TLSI cluster firms each provided ongoing input into the number and types of courses required in their efforts to maintain the innovative ability of the industry.

## **7.7 CHAPTER SUMMARY.**

This chapter provided an analytical account of the Tasmanian governments' role in developing Tasmania's diamond factors during the growth stage of the TLSI cluster's life cycle. The growth stage of the TLSI cluster's life cycle was characterised by continued efforts by consecutive Tasmanian government to capitalise on the state's growing reputation as a world centre for innovative shipbuilding and maritime production. During the early-growth stage, the Tasmanian government's policy initiatives were focused on the firm that was seen as driving the innovations within the industry, International Catamarans, as they were creating valuable employment positions and generating real economic growth for the state. The Tasmanian government's involvement in leasing an Incat vessel for its passenger service across Bass Strait, and its negotiations for Incat's international sales, was a major policy initiative focused on reinforcing the industry's reputation internationally. As an indirect result of the Tasmanian government's support for Incat in the early-growth stage, there was pressure placed upon Incat's Tasmanian-based supplier firms to similarly innovate their products, so that they remained a preferred supplier to Incat. The pressure for Incat's supplier firms resulted in the individual firms receiving both

solicited and unsolicited orders from their own international buyers of related products, such as fireproofing equipment, specialised ship fittings, and personal safety devices.

As with the introductory stage of the TLSI cluster's life cycle, the innovative drive within the industry came from the private sector firms themselves, with the Tasmanian government largely responsible for the facilitation of the required infrastructure to accommodate and/or minimise the barriers the industry's growth potential, and improve its reputation as an innovative centre of global shipbuilding. Similarly, the Tasmanian government's policy initiatives and facilitative infrastructure provision appears only to be provided for after the industry had recognised its necessity to support future growth, and was able to demonstrate this to the Tasmanian government. Towards the end of the growth stage, a major economic slowdown occurred in the world economy, largely attributed to the 'Asian Financial Crisis' of 1997. Due to a significant reduction in demand for new shipping vessels worldwide, the growth achieved by the TLSI cluster between 1984 and 1998 was unable to be sustained in the period immediately following. This change in the world economic circumstances triggered a need for a new set of government policy initiatives that reflected the changing needs of the TLSI cluster in what now represented the mature stage of its life cycle. The following chapter analyses the Tasmanian government's role in the resultant maturity stage of the TLSI cluster's life cycle.

## **CHAPTER EIGHT.**

### **ANALYSIS OF THE CASE STUDY: THE MATURITY STAGE OF THE TLSI CLUSTER'S LIFE CYCLE 1998 – 2002.**

#### **8.1 OBJECTIVE OF THE CHAPTER.**

The objective of this chapter is to provide an account of the critical incidents and interactions between the Tasmanian government and the TLSI cluster during the period 1998 - 2002. This period of time was associated with the maturity stage of the TLSI cluster's life cycle, a stage characterised by the deceleration of the TLSI cluster's sales growth and innovative output. As with Chapters Six and Seven, this chapter discusses each of Tasmania's diamond factors in turn, and discusses the manner in which they were advanced (or otherwise) by the interaction of the TLSI cluster and the Tasmanian governments. The chapter closes with a summary of the interaction between the TLSI cluster and the Tasmanian government during the industry's maturity stage in terms of Porter's ICT.

#### **8.2 THE TASMANIAN GOVERNMENTS: 1998 - 2002.**

During the period 1998 to 2002, Tasmania was represented by two elected state governments, one representing the state's Liberal Part, the other the state's Labour Party. At the beginning of the TLSI cluster's maturity stage in 1998, the incumbent government was that of the Rundle Liberal government, which held office until September of that year, when it was replaced by the Bacon Labor government. During the initial stages of the TLSI cluster's maturity stage, the Rundle Liberal

government oversaw one of the most important networking developments to occur in the shipbuilding and marine manufacturing industries, namely the formal establishment of the Tasmanian Maritime Network (TMN).

During the period of September 1998, and the end of this research project, the newly elected Bacon Labor government oversaw the formation of six important policy initiatives that facilitated the continued development of the TLSI cluster. The first, in late 1998, was the restructuring and renaming of the TDA into the Department of State Development (DSD), which now incorporated a Skills Development Unit focused on advancing the state's human capital resources. The second policy initiative, undertaken in 1998, was the Tasmanian government's purchase of equity in a recently formed shipbuilding company (North West Bay Ships, hereafter NWBS) located at the state's newly formed Marine Park at Margate.

During 1999, the Tasmanian government implemented its third major policy initiative by introducing its Industry Development Plan (IDP). The IDP was established in order to facilitate an increase in export and import-replacement businesses in Tasmania by identifying and developing the growth and export potential within the state's major industries. The Tasmanian government undertook its fourth major policy initiative, also in 1999, by providing Incat with financial relief in the form of a reduced payroll tax liability. The pay roll tax relief was justified by Premier Bacon as being consistent with the recommendations of the Industry Audit process, and noted that another 15 businesses also qualified for the relief under the guidelines of the policy initiative.

The Tasmanian government's fifth policy initiative involved the lobbying of the nation's Prime Minister on the key issue of federal grants and loans for Incat, such that the company could meet its cash flow and debt servicing requirements. Also during 2001, the Tasmanian government undertook similar lobbying efforts with the federal government to purchase a \$1 million state-of-the-art Model Test Basin for the AMC, an effort that included a \$421 000 contribution on the Tasmanian government's behalf. The sixth policy initiative was represented by a direct government loan to Incat of \$30 million, and was granted after its lobbying efforts for federal grants to the company were rejected outright by the Prime Minister.

### **8.3 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'FIRM STRATEGY, STRUCTURE, AND RIVALRY'.**

In terms of developing the regional economy's firm strategy, structure, and rivalry during the maturity stage of the TLSI cluster's life cycle, the focus of the Tasmanian governments surrounded the formalisation and enhancement of the synergies inherent to the TLSI cluster's network arrangement. The Tasmanian government's subsequent involvement in the provision of an internationally effective marketing campaign for the TLSI cluster (through the TMN) will be addressed in the subsequent discussion concerning demand conditions.

Of the Tasmanian government's involvement in the marketing of the TMN, the acting Premier, Mrs. Sue Napier stated in a press release that:

Tasmania is to be marketed as a "one stop shop" for international customers requiring shipbuilding services...the aim of the network [TMN] is to jointly market members' products and services to show the world that Tasmania has the innovative services and products for manufacturing their ships (Napier, 1998:1).

The change in state government from a Rundle Liberal government to Jim Bacon's Labor government in September 1998 resulted in the introduction of three major policy initiatives concerning the development of the regional economy's firm strategy, structure, and rivalry. The first policy initiative surrounded the renaming and reorganisation of the TDA into the Department of State Development (DSD), which included a specialised division called the State Skills Development Unit, and the introduction of an Industry Development Plan to ascertain the drivers and inhibitors to the regional economy's growth potential. Of the IDP, Premier Bacon stated that:

The Industry Development Plan (IDP) is a structured and systematic approach to rebuilding the Tasmanian economy. The Government's aim in conducting industry audits in its early months in office was to ensure a strong, information-rich foundation for the IDP, so that a sound framework would be created for engagement with, and assistance to, business (Bacon, 2001d: 1).

The second policy initiative centred on the creation of Industry Councils within the state (councils that represented each of the state's most prominent exporting industries), whilst the third resulted in the Tasmanian government undertaking an equity partnership with an innovative new shipbuilding company at the Margate Marine Park.

The renaming and reorganisation of the DSD did not alter its association with the TLSI, where it remained an integral member of the TMN. However, its role within changed quite considerably, from that of merely a resource provider to one that attempted to ascertain the growth needs of the shipbuilding and marine manufacturing industries. In order to achieve this end, the DSD implemented its Industry Development Plan, which required it to undertake a research role known as the Tasmanian Industry Audits Programme:

When we came to government though, the first thing we did, in terms of the Industry Development Plan, was a very comprehensive industry audit and that was focused on what I was saying – we were trying to identify “what are the industries that for natural advantage reasons can prosper?” What are the problems or obstacles to that? How do we remove them? How do we assist those to grow? The TLSI cluster was seen as one where we have these natural advantages. (Jim Bacon. Personal Interview, 2002).

Well, the government basically did this to help industry... but let me assure you we didn't merely send a questionnaire out. In the case of the maritime industry, the audit was conducted at its busiest time – summer. That was most inconvenient for them, we recognised that and we acted accordingly. So, what I did in many cases I actually went out and filled the survey form in with them basically in the workshop to cause minimum disruption to whatever they were doing and also to basically sit there, “is that what you want to say?” Filled it in and they signed it. Of course, in some instances we got very competent responses to questions, all filled out electronically and so on and got a mix of them. We had a large turn out basically, a high rate of compliance (John Keller. Personal Interview, 2002).

The Tasmanian government, therefore, undertook a significant information-gathering role in the maturity stage of the TLSI cluster's life cycle. In particular, the Tasmanian government was keen to ascertain the growth needs of what Premier Bacon identified as ‘natural industries’ within the state. In addition, Premier Bacon discounted the state's traditional policy of subsidising employment opportunities in industries where the region has no ‘natural advantages’ as an unsustainable policy choice:

It was totally unsustainable because the minute another government grants a greater subsidy, they packed up and left. Largely because there was no reason for them to be here other than the fact that the government had come and offered them so much money - they would have been mad not to. It was unsustainable. So, we are very careful now not to financially support activities that haven't got reasons independent of the financial support to profit in business in Tasmania (Jim Bacon. Personal Interview, 2002).

One of the first recommendations to arise from the Industry Audit Programme was the establishment of Industry Councils for each of the state's 'natural industries' through which the DSD could more effectively provide a role for the Tasmanian government.

The Tasmanian government in the past two years decided that it would be a good idea to form industry councils – Manufacturing Industry Councils, and a few others. What they found there, through surveys and everything else, it was difficult to bring people together and gain commitment. Now, what we had already, in a way, was one of these councils. It had already formed by our own efforts in the [TMN]. So, we were able to encourage the rest of industry to join in the council as a group (Terry Hall. Personal Interview, 2002).

Our role in the industry council is to provide the secretariat. We don't run the industry council, the industry councils they run themselves, we provide secretarial services, that is, they produce minutes of meetings, distribute the minutes, they produce agenda, mail that out and we do position papers, the industry council tells us to go away and get some information, we do that. For example, they may want to know a bit more about Workplace Health and Safety, so we [the DSD] line a team of speakers from the Workplace Standards Authority who can give, we get an inspector actually talking about, how does it work on the ground, the head of the agency who gives a half hour on agency policy and so on and how they see it. We also have a lot of very innovative programs and it is amazing how the people of the industry council said, "we didn't know that, we didn't know that," and to some extent that sort of diffusion of government activity is an interesting and important outcome of the industry council program (John Keller. Personal Interview, 2002).

I think it has benefited us in a couple of ways. I mean it has actually brought all the industry together, work a little closer together. Also as a cohesive unit it has given us a lot more prominence as the second major boat builder in the industry (Allan Williams. Personal Interview, 2002).

Importantly, the Maritime Manufacturing Industry Council (MMIC) did not differentiate between the firms it represented. The Tasmanian government, through the DSD's involvement, interacted with the MMIC as a collective of firms with equal weighting, not one that was focused on the needs of the TLSI cluster's hub firm, Incat. Of the nature of the MMIC, a number of private-sector members commented that:



No, it's not just another platform for Incat, because the [MMIC] is actually a group of companies that includes Incat, but when any one of this group have a concern, or question, they have the floor, and the government, through the DSD addresses those concerns or questions. We have actually got some brochures on the advantages of the [MMIC] that we give out. It is not just about making Incat happy (Terry Gunton. Personal Interview, 2002).

One of the messages that came through from the Department of State Development that as an industry we should tell them more – we think that should happen and they will help facilitate it. They don't necessarily want to go out there and tell us what to do – as a maritime network we should tell them what we want to do and get them to help. That is my understanding (Anthony LaFevre. Personal Interview, 2002).

At the marine industry meetings we have been to, ourselves and others have certainly passed onto the government ideas and the government will certainly listen and generally they analyse and in more cases they go along with it rather than disagreeing with it – people in the industry certainly know in most cases better than the government what we need to do get there (John Muir. Personal Interview, 2002).

As such, the Tasmanian government, through its DSD, established and galvanised a close formal relationship with the TLSI cluster (and Tasmania's shipbuilding and marine manufacturing firms in general) but remained at an arm's length in terms of its assistance to them. That is, the Tasmanian government did not attempt to become involved directly with the innovative nature or processes of the industry's interaction, but rather provided assistance that enabled the TLSI cluster to communicate more effectively with other government representatives and departments.

Perhaps the most significant government policy initiative to emerge from the Industry Council framework was the need for the Tasmanian government to establish a number of other key hub firms within the state's shipbuilding and marine manufacturing industries, and therefore, to dilute the importance of Incat to the TLSI cluster. Of the policy initiative to dilute the TLSI cluster's reliance on the success of Incat, the incumbent Premier and head of the DSD stated that:

●ne of the big problems that were identified with the industry was that it was too reliant on Incat, and that having one major company does not a healthy cluster make! You've got everybody relying on this one company, and we saw that as a weakness of the industry, that it was too reliant on one company (Jim Bacon. Personal Interview, 2002).

●ne of the concerns that we had was that the cluster had too much reliance on a single customer, that customer being Incat. They were as aware as us of that being unhealthy in the long run, and they collectively worked very hard with us to expand their non-Incat business and I think they are glad of that now. (John Keller. Personal Interview, 2002).

The Tasmanian government's assumption resulted in its implementation of the third important policy initiative dealing with the regional economy's 'firm strategy, structure, and rivalry', namely, the equity partnership deal with NWBS in 1999. The newly established shipbuilder, located at the state's Margate Marine Park, was also involved in the construction of aluminium fast ferries, although it sought to differentiate from Incat by focusing on much smaller catamarans, and introducing the world's first aluminium trimaran. Of the equity arrangement with the NWBS, Premier Bacon noted that:

So, we assisted ... to establish North West Bay Ships at the Margate Park, we have given them considerable assistance over the four years, in terms of finding them land, purchasing equity, and removing barriers such as zoning issues etcetera. North West are a valuable addition to the cluster, as they are in a different part of the market than Incat, and therefore not taking business away from Incat, but generating new business for the state. As a result, the other companies in the cluster have all strengthened, as well because they have realised relying on Incat is a bad move – or relying solely on Incat is (Jim Bacon. Personal Interview, 2002).

The Tasmanian government also strongly favoured the policy to inject 'new' innovative management into the TLSI cluster that was significantly departed from Incat and its product offering, with Premier Bacon stating of the policy initiative to introduce NWBS's trimaran technology into the state that:

But you see the NWBS technology represents a completely different vessel, that is a trimaran and the company argues very strongly that it is far more fuel efficient than the Incat vessels and more stable in the sea. It is problem for the Incat vessels because whenever you are on the seas it is simply a fact that no aluminium ship that goes at those speeds is allowed to operate anywhere in the world when the seas are over four metres. I think you do need people who are prepared to, not only people who are capable of coming up with the innovations for things that do make it different and better, you need people who are prepared to take the risks (Jim Bacon. Personal Interview, 2002).

The equity relationship between the Tasmanian government and NWBS allowed the Tasmanian government to directly influence the nature of the new company's operations, representing a significant departure from the Tasmanian government's traditional arm's length role with the cluster. For the first time in an official capacity, the Tasmanian government was able to determine the strategy of a key private sector entity within the TLSI cluster. Commenting on the nature of the relationship, the manager of NWBS said that:

The equity arrangement is managed through DSD. So, we brief them on what our prospects are and what we are doing and keep them informed and give them our financials and that sort of thing. The DSD have helped out tremendously in the past, but I think the government are at the point now they feel we should be going and doing trade shows and trade missions ourselves. Besides that the DSD administer a few government audits – the government has a shareholding in our company and they administer that shareholding so they are aware of what we are doing and where we are going so we have an on-going relationship with a case manager there, just knows what we are up to and what we've got in mind (Nigel Burrridge. Personal Interview, 2002).

The government's investment and effort at establishing NWBS as another driver of innovative shipbuilding within the cluster was received favourably by the TLSI cluster firms (including NWBS) of whom a sample of TLSI cluster firms managers said that:

The feeling I got was that the government felt that this was an industry that they could foster a little but more; probably just make them more supportive of a new entry like us to get started. With hindsight they would have to say that their decision to help us has been a good one, adding to the diversification of the industry and the different vessels we are building. We have actually just won a contract for a motor yacht, which further diversifies the industry away from just reliance on ferries, and we will provide two years of work for about 100 men, outside the ferry industry. I think the government's decision to support that diversification is bearing some fruit (Nigel Burridge. Personal Interview, 2002).

Since that there is a very clear and direct policy, which has been, it is not written, but it has been stated publicly, that the Premier is pushing to have diverse marine industry in Tasmania that is not totally reliant on Incat, that is spread between markets, that covers the whole market (Allan Williams. Personal Interview, 2002).

### ***8.3.1 Summary of the government roles in developing the regional economy's 'firm strategy, structure, and rivalry' during the maturity stage.***

In terms of facilitating the development of the TLSI cluster's firm strategy, structure, and rivalry, the Tasmanian governments' role focused on the enhancement of the synergistic characteristics inherent to the TLSI cluster. Through the reorganisation of the TDA into the DSD, the Tasmanian government undertook a critical research role in the maturity stage of the TLSI cluster's life cycle; the most important of which involved the determination of the drivers and inhibitors of the TLSI cluster firm's growth potential. The research agenda included a series of Industry Audit Programmes targeting each of the regional economy's leading export earning industries, from which a State Industry Development Plan was established.

Simultaneously, the DSD implemented a policy initiative that allowed the cluster firms an increasingly direct communication channel with the Tasmanian government through its establishment and representation on the Marine Manufacturing Industry

Council (formerly known as the TMN). Interestingly, the Marine Manufacturing Industry Council comprised of approximately 85 percent of the state's entire shipbuilding and marine manufacturers, allowing all of these firms to associate more closely with (and learn from) the success of the TLSI cluster.

The inclusion of the non-TLSI cluster firms within the Marine Manufacturing Industry Council reinforced Premier Bacon's policy choice to strengthen the diversity the state's product offering, and incorporate an integrated 'community' of shipbuilding and marine manufacturers within the regional economy. Further to this policy initiative was the Tasmanian government's facilitation, and equity arrangement, with a firm undertaking a niche marketing strategy with their innovative trimaran technology - NWBS. The equity arrangement allowed the Tasmanian government to influence the strategic direction of the new venture (something it had not attempted before) and effectively diluted Incat's importance as the primary driver of innovation, and generator of export sales, within the TLSI cluster. The Tasmanian government's policy initiative also helped broaden the demand for the goods and services of the TLSI cluster's supplier firms beyond that of a single, albeit significant firm (i.e. Incat's demand alone would no longer determined the existence of the TLSI cluster).

#### **8.4 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'DEMAND CONDITIONS'.**

In terms of developing the regional economy's demand conditions during the maturity stage of the TLSI cluster's life cycle, the focus of the Tasmanian governments centred on the enhancement of the state's reputation as an innovative marine manufacturer,

and the implementation of a consistent marketing strategy for set of cluster firms to be communicated to the international marketplace. In particular, the Rundle Liberal government attempted to realise the economies of scale available in the marketing of the state's innovative industries as a set of interrelated firms, and the economies of scope that existed in marine manufacturing at the single geographic location. Of the initiative, the acting Premier Sue Napier stated that:

Tasmania is to be marketed as a “one stop shop” for international customers requiring shipbuilding services...the aim of the network is to jointly market members' products and services to show the world that Tasmania has the innovative services and products for manufacturing their ships (Napier, 1998:1)

The change to a Bacon Labor government in 1998 was accompanied by a continuance of the state sponsored ministerial trade missions, although the focus of the efforts changed to include the entire maritime production within the state, not simply that of Incat. This change in focus was undertaken in order to be consistent with the IDP recommendations, and the DSD's involvement with the TMN, and therefore, the entire set of shipbuilding and marine manufactures within the state. On the subject of ministerial trade missions under the Bacon government, Premier Bacon stated that:

Yeah – so really the point of all of that is to say that, yes, government assistance with trade missions and with meeting key people which only a Premier or minister can get access to, and the trade shows with the department and the assistance helps enormously. We have grown our participation in the trade shows substantially because far more than just being Incat we are now trying to get the whole cluster there, indeed the whole of the state really, so that the others can get independent orders quite away from what is happening in Tasmania. Ultimately all that it comprises, other than ones that only service the local community, all have to obtain as much of their income as possible from outside the island – if they don't it is inevitable that they are going to go under (Jim Bacon. Personal Interview, 2002).

This policy initiative was aimed at both supporting the state's entire shipbuilding and marine manufacturing industries, as well as broadening the market's perception of what goods and services could be purchased from the state. Importantly, the Tasmanian government attempted to avoid marketing the regional economy as a producer of Incat range of vessels alone, as the manager of the DSD commented:

If you look at it Incat alone, they had a range of vessels, ranging from 74 to 112 metres and within that range they would build you a vessel if you order it. They would always prefer to build bigger vessels to building smaller vessels if they had the orders because they see themselves pushing out the frontiers and so on. So, if you get a contract for building 98 metre boats, why bother building a 50 metre one. We don't want someone to come to Tasmania and say, "I want a 55 metre vessel" and Incat says, "Sorry, go away, we are not doing that we are building bigger ones." So, what we want is someone to take advantage of such orders and you notice that the envelope that has been looked at by North West Bay Ships is in the 45-55-metre class and that is below the Richardson Devine. Now if you say Richardson Devine, well I am not sure if they will take on a 40 metre vessel, but they certainly wouldn't take on a 45 metre vessel – they would say, "it is too big for us, can't manage the cash flow, haven't got a workshop big enough, they haven't got the number of staff that you need to work on that." So, there is a perception of a range of product and we want to have this range (John Keller. Personal Interview, 2002).

The Tasmanian government recognised, therefore, that for the regional economy's shipbuilding and marine manufacturing industry to remain internationally competitive, each of firms involved needed to focus on deriving real sales growth from their export markets. This recognition, and the Tasmanian government's efforts to include all of the state's shipbuilding and marine manufacturing firms in their trade missions, resulted in the continued demand for the state's output. As one of the TLSI cluster member general managers noted:

The state politicians have been very supportive of the company. The Premier has actually taken time out of European tours to go to another country and support us in our quest. He actively supports our business, and this has directly resulted in extra sales for us (Alan Williams. Personal Interview, 2002).

As part of its trade mission effort, the Tasmanian government's representatives, including the Premier, ensured that the 'natural advantages' of the Tasmanian regional economy were identified and included as a point of differentiation within the international marketplace. The promotion of Tasmania's 'natural advantages' was rationalised as a significant policy direction by Premier Bacon when he stated:

What we wanted to do was identify what the natural advantages for Tasmania are and, simply put, because I don't believe it is possible for regional economies to prosper in a globalised economy unless they are based on characteristics which the state has, and which no one else can take off you (Jim Bacon. Personal Interview, 2002).

As an exemplar, Premier Bacon noted that:

A great example is that of Richardson and Devine Marine. I had trade meetings with Bells & Russel three years ago; I have had meetings here and hosted dinners for people from Bells, which is all about Richardson and Devine Marine getting into the European canal and river market. One over there is a real problem with water damage, and therefore a good market for these low wash hulls – which were designed and developed for the Gordon River where they had to have very low wash to avoid damaging the fragile soil and plant life on the shore. They have developed a design that is the best for the canals and rivers in Europe, there are a lot of canals that are very old now so they can't take a lot of heavy wash. At the same time cities like Brussels are just absolutely unbelievable for traffic, if they had the canals going they could get more public transport back onto the water like it was once and then they could ease the traffic problem. We are very confident that eventually they will, Richardson and Devine will crack it because they have got a product that is perfect for a big problem in Europe (Jim Bacon. Personal Interview, 2002).

Perhaps the Tasmanian government's most notable effort at driving international demand for the TLSI cluster's production occurred under the Bacon Labor government in 1998. During 1998 the DSD undertook a major marketing role on behalf of the TLSI cluster for the 'Pacific 2000' trade show, the largest such event to be held in the southern hemisphere. Of the DSD's effort at coordinating the TLSI cluster's entry to Pacific 2000, the head of the department stated that:



The DSD exercised a co-ordinating function and they performed the role of ensuring that there was a reasonable similarity in looks and feels of reports and all that sort of thing, because otherwise, if you get trendy professional each doing a report everyone has their own ideas. So, there has been a sort of, we have put a stamp of uniformity contextually. We have co-ordinated the production of the documents and all that sort of thing (John Keller. Personal Interview, 2002).

The marketing role undertaken by the DSD on the TLSI cluster's behalf was well received by the cluster firms, whose managing directors noted:

I was taught a lesson a long time ago when I was doing some work in Japan. I went to Japan to sell the Japanese a product, that product was made up of various components of grand prix sailing yachts, America's Cup had been won by Australia and we went up there with mast makers and sail makers and boat designers, we had the best in Australia, go to Japan to market our product and take over the Japanese market. All I saw was the mast maker arguing with the sail maker who was arguing with the designer, and this was our own people. The New Zealanders came in, dressed in the jackets and ties, totally professional with what they were doing, totally supporting each other and took the market out of Australia – just took it away, overnight virtually. The DSD helped us to avoid repeating our bad behaviour at what was a very grand event for the industry (Michael Granger. Personal Interview, 2002).

Yes – they [the DSD] organised it all – they were really good, they organised the whole set up of the display, quite effectively, support of the companies that go there and exhibit. They co-ordinated everything so the marine group looks the same – like a group rather than mismatch (Anthony LaFevre. Personal Interview, 2002).

The DSD, therefore, provided the TLSI cluster firms with marketing competencies that were beyond the scope of any of the individual firms to supply. As such, the DSD provided an enabling policy for the TLSI cluster firms (and a number of TMN member firms) to present a cohesive and consistent marketing message for the Tasmanian shipbuilders and marine manufacturers to the potential customers patronising the 'Pacific 2000' trade show. This enabling policy was highly valued by the cluster firms, whose newest member's manager commented:

We were wholly conscious of that and the cluster effect was adding to the industry. We used the local suppliers, but I think the more important effect of the cluster is in the marketing of the products and selling the boats, which is by far the hardest work. International eyes are on Tasmania when you are casting around looking for somebody to build ships like we build down here. I think that the connection between the brand that Tasmania has developed, and its relevance in the marketplace, has been the most important to our success (Nigel Burridge. Personal Interview, 2002).

#### ***8.4.1 Summary of the government roles in developing the regional economy's 'demand conditions' during the maturity stage.***

In terms of facilitating the development of the regional economy's 'demand conditions' during the maturity stage of the TLSI cluster's life cycle, the Tasmanian governments' role centred upon the continued enhancement of the state's reputation as an innovative world centre of shipbuilding and marine manufacturing. The major departure undertaken by the Bacon Labor government was the inclusion of the entire set of the state's shipbuilding and marine manufacturing firms in efforts to market the state as a 'one stop shop' for international consumers. As a result, the TLSI cluster (and to a lesser extent the set of firms involved in the TMN) were able to be marketed as an integrated network of firms, thereby associating all of these businesses with the innovative success enjoyed primarily by the TLSI cluster. The marketing efforts undertaken by the Tasmanian government (largely through the DSD and ministerial trade missions) were consistent with its aim to reduce the state's reliance on Incat as the driver of future innovation, and as the generator of the majority of export sales revenue for the industries.

The DSD's aim was develop and market Tasmania's shipbuilding and marine manufacturing industries as a 'one-stop-shop' for the international customer. The inclusion of the non-TLSI cluster firms within the Marine Manufacturing Industry Council reinforced the Tasmanian government's policy to strengthen the diversity the state's product offering, and incorporate an integrated 'community' of shipbuilding and marine manufacturers within the regional economy. In order to achieve this end, the Tasmanian government, through the DSD, undertook some important research, marketing, and coordination efforts, the most important of which involved the determination of the drivers and inhibitors of the TLSI cluster firm's growth potential. The research efforts included the provision of a more effective communication channel between the state's shipbuilding and marine manufacturing industries and the Tasmanian government (through its role in the TMN), its continued involvement in the TLSI's sales negotiation process, and the implementation of the IDP's Industry Audit Programme.

Further to this was the Tasmanian government's facilitation, and equity arrangement, with a firm undertaking a niche marketing strategy with NWBS. The equity arrangement allowed the Tasmanian government to influence the strategic direction of the new venture and effectively diluted Incat's importance as the primary driver of innovation, and generator of export sales, within the TLSI cluster. The Tasmanian government's policy initiative also helped broaden the demand for the goods and services of the TLSI cluster's supplier firms beyond that of a single, albeit significant firm.

## **8.5 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'RELATED AND SUPPORTING INDUSTRY'.**

In terms of developing the regional economy's related and supporting industry during the maturity stage of the TLSI cluster's life cycle, the focus of the Tasmanian governments centred on the enhancement of the synergies available within the TLSI cluster. This aim was undertaken by policies that further integrated the operations of the individual cluster entities, and in particular, those between the private sector firms and the government sponsored training institutions. As part of the TMN arrangement, the Tasmanian government funded the introduction of a number of reciprocal arrangements between the TLSI cluster's firms and its training infrastructural support, utilising the resources of the DSD, AMC, and the TAFE. In terms of improving and updating the AMC and TAFE's training courses, the managers of the TLSI cluster's private sector firms indicate a significant level of interaction that serves both the individual firm, the educational institution, as well as indirectly benefiting competitor firms:

Yes – we have had quite a bit of dealing backwards and forwards with them [the AMC]. They have actually asked use for advice, and back in the early days we helped them set up their hydraulic steering systems (Richard Riley. Personal Interview, 2002).

They [the AMC] are part of the Tasmanian Maritime Network, so we do have dealings with them by way of reciprocal arrangement; from promoting their products and them promoting ours at exhibitions. We also use the college to test out new ideas and sometimes we even suggest ways that they can help similar businesses to our own (Terry Gunton. Personal Interview, 2002).

I mean the fact that our president [of the TMN] is also the chief instructor at the TAFE college here, that is a government body, and there is this influx of government ministers, etc., to the TAFE college over time and it has been brought to their notice that we are involved in this network aspect. Whether it has a direct bearing in any way, I don't know. The fact that we have been involved with the TAFE College there is that awareness that we are about (Terry Gunton. Personal Interview, 2002).

Interestingly, the concern that other firms should be able to benefit from the TLSI cluster's enhanced interaction also included international competitors, although not entirely for benevolent reasons. As the head of the TAFE Aluminium Welding School indicates:

When we started talking about selling some of our training overseas, because we had an expertise to off-sell, Clifford was actually for the idea and said, "Go for it, because what I don't want to see is the vessel sink anywhere in the world that is made out of aluminium because down goes the market as soon as one does it." He had an outlook that way and he actually helped anything that we wanted to do, we could utilise any of his staff if we wanted to, if we needed expertise he did it. Even in the Canadian deal [an export training arrangement] we used one of his staff that had expertise in one of the skills analysis areas. So, again we were able to utilise each other (Terry Hall. Personal Interview, 2002).

Similarly, the training institutions themselves sought to improve their training competency by involving the TLSI cluster firms in the formulation of courses, and utilising the Tasmanian government's resources, fund the changing curriculum and introducing a national accreditation for them. As the director of the TAFE Aluminium Welding School notes:

Naturally we have the expertise in providing the necessary training, but before we set up any course, or on any request, we actually go down onto site, talk to those that require the training, and form it to suit them. But, then we will have to make sure it fitted to the middle stream packages and other things. We can set up personalised training programs for individuals but that it not certificated but if we can fit it into a training package we can get some outcome that is beneficial to the person that is getting the training and not only the company – so, that is the sort of way we look at it. We try to benefit the user of it, the one that is physically going to do the work and also keep the company happy and he gets what he wants as well so they both get it in the end and the man that does it can carry it somewhere else (Terry Hall. Personal Interview, 2002).

As such, the Tasmanian government focused its efforts on the maintenance of the TLSI cluster's training regime, ensuring that the innovative nature inherent to the success during the growth stage of the industry's life cycle was likewise maintained in an environment of decelerated sales increases.

One of the most important issues arising from the implementation of the IDP was the recognition that there was a requirement for the Tasmanian government to undertake a number of key roles that would be otherwise provided by private sector firms in a major Australian economy. A number of current and ex-state politicians concur that the Tasmanian government has a unique role in developing its economy:

I think the government of a regional economy has got to get in there and help industry. Obviously there is more that we can do – but if our economy is to really develop, the government must play a central role. I think we still have future problems – we are a relatively poor state – we are struggling still, our unemployment levels are much higher than elsewhere. We are remote in terms of the world markets, and unless government is very pro-active, and unless government is up with the latest and really effective in helping industries, then we will stagnate and continue to struggle along on the bottom. I don't think any government yet has found all the answers, and we will probably have to redefine the wheel or something like that rather than find the answer (Ray Groom. Personal Interview, 2002).

Being responsible for a state makes it different. In Victoria, if you want to influence strategic decision-making you could probably pull together a room of 50 people who command large resources and if you can sell the taste to them you can perhaps achieve an end quickly. In Tasmania that would be very difficult. Doesn't mean it can't be done but it does mean that you are negotiating with entities which are often represented at fairly low levels without decision making capacity in this state or without profound decision making capacity (Duncan Kerr. Personal Interview, 2002).

I think the government in Tasmania is always going to be more important than in a macro-economic setting. You don't have to intervene much in Sydney or Melbourne. In Tasmania you do just because within the economy itself government is such a big player. (Michael Field. Personal Interview, 2002).

I think the government in regional economies, particularly in a small regional economy like Tasmania, inevitably has a bigger role than one in a larger economy. The larger economies have got critical mass, they pretty much run under their own steam and it is really an option of choice for government, how much government gets involved. A regional economy is different because of certain things, like population, geography etc, and the government has a key role in bringing people together, and providing leadership. I think, though that the government does not have a key role in how to run enterprises, but rather to provide leadership in terms of the direction that we want to go, the things we need to concentrate on (Jim Bacon. Personal Interview, 2002).

As such, the Tasmanian government's reorganisation of the DSD resulted in it playing a central role on behalf of the Tasmanian government within the diamond factors pertinent to the TLSI cluster's development. For example, the DSD was charged with providing a coordinating role for the TLSI cluster firms (in their efforts to communicate with the many faces of government); on numerous occasions it had undertaken significant and direct efforts to negotiate with the TLSI cluster's potential customers; and as mentioned in 'demand conditions', it undertook an important marketing role for the TLSI cluster (and the TMN's) entry into the 'Pacific 2000' trade show. Of the DSD's role in providing a supporting role for the TLSI cluster, the head of the department noted that:

We maintain close co-operation with all government agencies, be they federal or state-based. We create an awareness of the programs and services and we offer, including our access to marketing expertise and research data that we have been able to generate. We certainly at all times seek to make our clients aware of programs where they can get advice, assistance, funding, particularly in such areas as research and development, which is actually a commonwealth function. We have a Tasmanian government office in Canberra and the Tasmanian government office in Canberra advises us formally of all changes in commonwealth policy, programs that have any impact on this state so that we can react to it in a speedy and professional manner (John Keller. Personal Interview, 2002).

The DSD's coordination and support role was sited as even more important, given the nature of the private sector in Tasmania:

I remember having these arguments with a number of federal ministers who were responsible for a number of federal industry assistance programs and saying, "Look it is very difficult to put together people who are genuinely able to command resources and speak for their communities, in places like Tasmania, because they are often not here [in Canberra]". The people that you are bringing together are second string managers who just don't have the clout or the resources." So, this is a real problem, this kind of level of regional economic development requires us to say, "Well, let's give resources to people on the ground, at that level, who know what they want." The one way we can find out is through research, and a strong relationship between private sector firms and government departments, like the DSD (Duncan Kerr. Personal Interview, 2002).

#### ***8.5.1 Summary of the government roles in developing the regional economy's 'related and supporting industry' during the maturity stage.***

During the maturity stage of the TLSI cluster's life cycle, the Tasmanian government's focus centred on the enhancement of the synergistic capabilities inherent to the TLSI cluster. In particular, the Tasmanian government focused on ensuring that the training programs offered by the AMC and TAFE Aluminium Welding School utilised state-of-the-art equipment were flexible in that they could accommodate the requests and changing needs of the TLSI cluster's private firms. In order to achieve this end, the Tasmanian government, through its involvement in the TMN, ensured that the TMN firms were involved in the course design process where appropriate, and that public monies were made available for the funding of the course changes, and that national accreditation was applied to the training courses. In addition, the Tasmanian government, also through the formation of the TMN, facilitated the development of a 'community' of Tasmanian shipbuilders and marine



manufacturers that could more readily access the infrastructure and government support that was formerly available only to the TLSI cluster firms.

The Tasmanian government also undertook the responsibility to provide a number of supportive roles for the TLSI cluster, including marketing support for the 'Pacific 2000' trade show, the continued representation of the state Premier's office during the sales negotiation process for the TLSI cluster firms, and the role of market and industry research analyst for the TMN. The roles undertaken by the government (largely through the DSD) were aimed at providing support services that were critical to the TLSI cluster's success, but beyond the scope or competency of any single firm within the TLSI cluster.

## **8.6 GOVERNMENT ROLES IN DEVELOPING THE REGIONAL ECONOMY'S 'FACTOR CONDITIONS'.**

In terms of developing the regional economy's factor conditions during the maturity stage of the TLSI cluster's life cycle, the focus of the Tasmanian government surrounded the continued upgrading of the training infrastructure for the TLSI cluster firms. In addition, and primarily for Incat, the Tasmanian government also undertook measures to support Incat through its cash flow crisis by providing the company with a government loan of \$30 million, and by reducing its employment costs through a reduction in its payroll taxation liability.

The Tasmanian government's aim of positioning Tasmania as an innovative 'one-stop-shop' for the international consumer was further supported by the Tasmanian government's lobbying effort with the federal government to purchase a \$1 million

state-of-the-art Model Test Basin for the AMC. In order to influence the purchase, the Tasmanian government pledged \$421 000 of the state's public funds to finalise the purchase. The Tasmanian government's investment in the educational infrastructure was justified by Premier Bacon in a government press release, where he indicated that:

The investment has certainly deterred other states from attempting to steal business away from the AMC and Tasmania. In fact, since late 1999, the AMC's newly established courses in Naval Architecture and Ocean Engineering have had significant growth in student numbers. The new hydrodynamic research facilities [the Model Test Basin] should enable AMC to continue to gain market share in these disciplines... As well as its educational function, the AMC has an enviable maritime research reputation, which will also be enhanced by the commissioning of the Model Test Basin (Bacon, 2001b: 2).

The Tasmanian government's strategy to increase its investments in the educational infrastructure for the TLSI and TMN included the funding and accreditation of courses that were jointly devised by the AMC and TAFE Aluminium Welding School institutions. As a result, the educational institutions were able to maintain its relevance to the innovative firms within the TLSI (and the TMN). As a number of TLSI cluster manager's stated:

Naturally we have the expertise in training but before we set up any course, on any request, we actually gone down onto site, talk to those that require the training and form it to suit them. But, then we will have to make sure it fitted to the middle stream packages and other things. We can set up personalised training programs for individuals but that it not certificated but if we can fit it into a training package we can get some outcome that is beneficial to the person that is getting the training and not only the company – so, that is the sort of way we look at it. We try to benefit the user of it, the one that is physically going to do the work and also keep the company happy and he gets what he wants as well so they both get it in the end and the man that does it can carry it somewhere else (Terry Hall. Personal Interview, 2002).

We have had talks with the TAFE, and they are responsive to industry needs, and they will schedule block release training at times when you are in a manufacturing environment like us, when at times it suits you not to have staff here and they will schedule block periods around those sort of times, and I have found them to be on the ball. Our first intake of apprentices all came through people doing courses out of TAFE. It helps to identify the kids that have the hands skills and the skill sets that they need to be successful in working in this industry. So, we have chosen our apprentices out of there and we have had 100% success rate with those guys so far (Nigel Burrridge. Personal Interview, 2002).

[The Model Test Basin at the AMC] is an important bit of infrastructure actually. All the models that we have developed, the hull forms that we are trying to develop, when they come up to 1/35 scale model size we take them to the Maritime College for their tank testing and use those facilities extensively. That really is an important facility. We have also had guys come through, Naval architects that have been trained up there, been working out of there as well (Nigel Burrridge. Personal Interview, 2002).

The Tasmanian government was aware that the educational and infrastructural support proffered by the educational institutions was paramount to maintaining, and indeed enhancing, the state's reputation as an innovative centre of shipbuilding and marine manufacturing excellence. Also, the investment represented an effort by the government to protect its shipbuilding and maritime manufacturing market share by raising the TMN firms' costs of exiting the state, should they receive financial incentives to relocate from a rival interstate government. As noted by TLSI cluster firm managers:

I think it was sort of like a rolling ball, once it got started it just gained momentum. I think the guys at the Aluminium School of Training had a bit to do with it because they helped promote the place as a cohesive marine area where we can train people to do all sorts of things. I think that was the grand plan and I think it has worked pretty well (Alan Williams. Personal Interview, 2002).

Although the investment in the TLSI cluster's educational infrastructure was intended to facilitate the development of the entire TLSI cluster (and the newly integrated TMN) the Tasmanian government's second policy initiative affecting the state's factor conditions was aimed at supporting only a few of the TLSI cluster firms, namely the major employers Incat, FC Management, and NWBS. Of the payroll tax relief for the firms, Premier Bacon and two TLSI cluster firms' managers stated that:

Tasmania's biggest private sector employer, Incat, is set for a payroll tax deal from the Tasmanian government. Premier Jim Bacon confirmed yesterday that he would meet Clifford within days to discuss payroll tax cuts. Of the tax relief, Premier Bacon stated "Payroll tax and the lack of skilled labour were mentioned in a recent industry audit as inhibitors to growth in Tasmania's shipbuilding industry. Already, fifteen existing information technology businesses have been earmarked for payroll tax exemption in the next financial year." (The Examiner, 1999a).

We were closed down twelve months ago and now we are back up and operating, and without the changes to the payroll tax we would not have opened our doors again, so it was a good thing (Bayles, in Stubbs, 2001).

It was pleasing to see, that was actually in the payroll tax area where we were involved with a group of companies and some changes were made where companies were grouped. We have got companies operating in different industries and it is illogical to be grouping companies that are in totally separate industry sectors. I understand the origins of the legislation, where people used to break up the same company into smaller groups to pay no payroll tax but when you are operating in totally separate industry sectors, the grouping was really illogical and they changed that legislation and now we are able to employ more people (Nigel Burridge. Personal Interview, 2002).

As such, the payroll tax relief applied to Incat, FC Management, and NWBS was a strategic response to the needs of the industry that arose from the IDP research, rather than merely a subsidy arrangement for important employers within the state. The Tasmanian government, therefore, implemented a policy initiative that effectively reduced the cost of labour for these three major employers within the TLSI cluster, ensuring that the firms remained viable and ongoing concerns during the economic

downturn, and that their workforce and innovative human capital capacity was not dissipated or lost to interstate firms.

In terms of supporting the major employers within the TLSI, the Tasmanian government was forced to specifically address the manner in which economic downturn adversely affected the cluster's leading employer, Incat. The marked downturn in the world demand for new ship production resulted in the company overestimating its projected sales revenues, leading to the overproduction of six vessels valued at approximately \$40 million each. The cash flow crisis that ensued jeopardised both Incat's ability to operate in solvency, and the reputation of the state as an innovative centre of shipbuilding. In response to the company's cash flow crisis, the Tasmanian government undertook a series of lobbying efforts to secure additional federal grants to help Incat fund its daily operations and maintain its workforce. The lobbying was unsuccessful, with the Prime Minister stating that the federal government could do nothing for the company beyond its current scheme to fund the Shipbuilding Bounty. The Tasmanian government's response to the Prime Minister's refusal was to provide Incat with a secured government loan (through the DSD) of \$30 million:

... it was revealed that the Tasmanian government lent \$30m to the shipbuilder last year. Jim Bacon confirmed that the Tasmanian government made a fully secured \$30m loan to Incat in July. "It is no secret that recently Incat has endured cash-flow problems, alleviated by the sale of a vessel and I congratulate Clifford on his company's recent success", Jim Bacon said. The Tasmanian Development and Resources loan will be repaid at an undisclosed rate, but the Tasmanian government has the first claim on Incat assets in the event that the company failed. "Incat Tasmania is one of the State's icon industries, employing more than 800 people onsite and supporting many hundreds more in allied industries", Mr. Bacon said (Paine, 2002).

As such, and similar to changes to the payroll tax legislation, the Tasmanian government was able to justify the loan arrangement as a method to protect the innovative nature of the state's TLSI cluster by protecting those that were employed by it. Of the loan arrangement, the head of the loaning body (the DSD) stated that:

... we still have a loan program. It hasn't been entirely abandoned but we are less active now in the loan area than previous incarnations of this department used to be. We used to have a far more active loan policy. Now loans are only given in matters of state significance, of which Incat's plight clearly is (John Keller. Personal Interview, 2002).

#### ***8.6.1 Summary of the government roles in developing the regional economy's 'factor conditions' during the maturity stage.***

In terms of facilitating the development of the regional economy's factor conditions during the maturity stage of the TLSI cluster's life cycle, the Tasmanian government's role focused on two critical issues. The first was the continued upgrading of the TLSI cluster's educational infrastructure; the second was the protection of the innovative human capital capacity that had developed, and was inherent to the international success of the TLSI cluster. The upgrading of the educational infrastructure served to further enhance the state's reputation as an innovative centre of shipbuilding and marine manufacturing excellence, as well as increase the exit costs to TMN firms that may receive financial incentives to relocate their operations interstate. As such, the Tasmanian government's investment in the AMC and the TAFE School of Aluminium Welding served to reinforce its strategy of marketing Tasmania a 'one-stop-shop' for the international consumer of ships and maritime manufacturing. In terms of protecting the TLSI cluster's innovative human resource capacity, the Tasmanian government also undertook efforts to reduce the costs of employing skilled

labour (through payroll tax relief to specific firms) and providing a non-subsidy, government loan to facilitate the ongoing operations of the TLSI cluster's hub firm, and state's largest employer, Incat.

## **8.7 CHAPTER SUMMARY.**

This chapter provided an analytical account of the Tasmanian governments' role in developing Tasmania's diamond factors during the maturity stage of the TLSI cluster's life cycle. The maturity stage of the TLSI cluster's life cycle was highlighted by the Tasmanian government's efforts to further enhance the synergistic characteristics of the TLSI cluster, and to extend the success enjoyed by the TLSI cluster to the wider community of Tasmanian shipbuilders and marine manufacturers. Interestingly, the Tasmanian government undertook significant and deliberate measures to ensure that the TLSI cluster diversified away from its traditional reliance on the demand generated by the TLSI cluster's hub-firm, Incat.

The Tasmanian governments' policy initiatives were largely implemented through the reorganisation of the TDA into the DSD in 1998. The new government department was immediately involved in the TMN as a research and communications facility for both the TMN firms, and the Tasmanian government in its many forms. The DSD was able to identify the drivers and inhibitors to the TMN and TLSI cluster's growth through its IDP and Industry Audits Programme. It also undertook measures to realise growth through its supportive responsibilities in provide marketing, sales negotiation, and communications functions for the TMN and TLSI cluster firms. Additional efforts included the continued upgrading of the TLSI cluster's educational infrastructure to include Tasmanian government investment in state-of-the-art testing

equipment at the AMC, and the funding and accreditation of courses requested and partially developed by the TLSI cluster firms.

In terms of reducing the TLSI cluster's reliance on Incat, the Tasmanian government undertook deliberate measures to dilute the firm's importance as a generator of sales and 'internal demand' for the TLSI cluster's production. For the first time, the Tasmanian government undertook an equity arrangement with a similarly innovative firm (NWBS) such that the TLSI cluster's supplier firms (i.e. not Incat) would have an increasingly diverse source of internal demand for their production, and perhaps more importantly, their ability to innovate. The Tasmanian government, however, continued their support for Incat as a major employer within the state. Given the global downturn in demand for its product, the Tasmanian government implemented financial and lobbying assistance for the firm in the form of payroll tax relief and a government loan of \$30 million such that the company could continue to operate (and employ) in a time of negative cash flow.

The maturity stage of the TLSI cluster's life cycle represents the third and last of the stages to be included in this research project. Chapters Five through Eight introduced each of the TLSI cluster's life cycle stages in turn, and undertook an analysis of the regional government roles that facilitated the development of the diamond factors pertinent to the international success of the TLSI cluster. The following chapter will provide a discussion of the Tasmanian governments' role in developing the regional economy's diamond factors over the TLSI cluster's life cycle, through which it will specifically address the research questions posed in Chapter Two.



## CHAPTER NINE.

### DISCUSSION AND CONCLUSION.

#### 9.1 OBJECTIVES OF THE CHAPTER.

The objectives of this chapter are threefold. Firstly, it provides a discussion of the thesis results by answering the specific research questions posed in Chapter Two. Secondly, the implications of the research are noted; these relate to the questions as to the beneficial roles that an Australian state government in a regional economy may undertake in the development of internationally competitive industrial clusters. Finally, the chapter closes with a report of the limitations of the research.

#### 9.2 DISCUSSION OF THE THESIS RESULTS.

The broad research opportunity identified in Chapter One of this thesis was: *What is the state government's role in the facilitation and development of an internationally competitive industrial cluster in a regional Australian economy?* In order to successfully answer the broad research question, two research questions were posed as follows:

**Research Question 1:** *What role did the Tasmanian Government play in the development of the TLSI cluster since its inception in 1977?*

**Research Question 2:** *How did the change in the importance of the TLSI cluster to the Tasmanian economy over time impact upon the Tasmanian government's policy development process?*

The questions were investigated through an extensive review of primary and secondary data pertaining to the TLSI cluster's development between 1977 and 2002. The secondary data research was analysed in order to formulate the set of questions used in the semi-structured interview process. The findings relevant to the research questions are summarised and discussed below.

***9.2.1 Discussion of the results in relation to Research Question One:  
What role did the Tasmanian government play in the development of the TLSI  
cluster since its inception in 1977?***

As noted in Chapter Two, one of the major reasons cited for the government's failure to effectively implement Porter's ICT has been the assumption by government that the industrial cluster's stage of development is irrelevant to the policy development process (Klepper, 1996; Walcott, 1999). As recommended by Audretsch and Feldman (1996), and Van Klink and De Langen (2001), this research undertakes an analysis of the Tasmanian government's policy initiatives during the life cycle stages of the TLSI cluster's development as defined in Chapters Six through Eight.

***9.2.1.1 The role of government during introductory stage of the TLSI cluster's life cycle.***

During the introductory stage of its life cycle, three key government roles positively influenced the TLSI cluster's development. The first was the state government's initial non-committal stance towards the specific development of the state's 'new' shipbuilding industry. The second role surrounded the enhancement of the state's reputation within the domestic market as a centre for maritime research. The third role was the government's support for the entrepreneurial activities undertaken by

Incat, when it became apparent that the company was a potential source of significant economic growth for the regional economy.

The state government's initial non-committal stance towards the state's 'new' industry was not deliberate, as its policy focus at the time was on the macro-economic restructuring of the state's economy away from its dependence on hydro-industrialisation. Due to this focus on the macro-economic restructuring process, the state government did not at any stage pre-empt the growth requirements of the potential industry. As such, the Tasmanian government avoided the issues surrounding many of Australia's industrial cluster failures of the 1990s in which governments built up the infrastructural support to potential industries in the hope that this would attract firms, as for example, the federal and South Australian government did with the failed multi-function polis planned for Adelaide. Consequently, the development of the innovative technologies (i.e. the development of elements of Porter's 'firm strategy, structure and rivalry') remained the sole responsibility of the private sector firms that existed during the industrial cluster's initial formation (i.e. Clifford and his maritime friendship network). As stated by Premier Groom:

... if government takes a too bigger role in [the private sector's activities] that is fraught with huge dangers because the record of government running shows is not very good. I happen to believe government needs to be there backing up...but the innovative process is still fundamentally a private enterprise show (Ray Groom. Personal Interview, 2002).

The second key role was the state government's development of the region's reputation within the broader domestic maritime market as a national centre for maritime research. The Tasmanian government implemented a series of lobbying initiatives that resulted in the federal government providing additional funding to the

AMC and relocating its national maritime research institute (the CSIRO) to Hobart. These state government efforts were largely aimed at the federal government rather than the private sector, but their success had implications for the region's 'factor conditions', 'related and supporting industry', and 'demand conditions'. The regional economy's factor conditions were advanced by developing the region's supply of human capital through both the generation of specialised employment and education within the broader industry. The regional economy's related and supporting industry factor was advanced by the increase in the sophistication of supply of inputs to the private sector firms (in terms of products and world standard maritime research). The Tasmanian government's enhancement of the region's reputation helped to develop the demand conditions faced by the private sector shipbuilding firms, most significantly in the form of customers ready to import their products from interstate. It was only after the domestic exporting success of Incat's semi-aluminium catamarans in the early 1980s were realised that the Tasmanian government undertook its third key role, that of accommodating the growth requirements of the innovative hub-firm Incat.

Although the Tasmanian government did provide its first direct support for Incat in the introductory stage of the TLSI cluster's life cycle, it did so only after the hub-firm's success was able to demonstrate its commercial success in the domestic market for ferry transportation. The government support for Incat was provided when the firm could demonstrate that it did not possess the resources required for its continued expansion, and then only after its management was able to demonstrate that significant increases in employment were the likely result of the support. This initial government support is consistent with the recommendation of Porter's ICT, as it

allows for the challenges facing the ‘new’ industry to be overcome whilst avoiding the inefficiencies associated with the government’s direct involvement in private sector enterprise.

#### *9.2.1.2 The role of government during the growth stage of the TLSI cluster’s life cycle.*

During the growth stage of its life cycle, three key state government roles positively influenced the development of the TLSI cluster. The first was the Tasmanian government’s continued effort to enhance the reputation of the regional economy, although the focus of these efforts changed from the domestic maritime market to one of a marketing effort in the international market for Incat’s fast-ferry vessels. The second was the Tasmanian government’s direct involvement in Incat’s sales negotiations processes with its international customers. The third was the Tasmanian government’s policy initiatives that served to maximise the synergistic relationship that existed between Incat and its supplier firms.

The first of the state government policies that positively influenced the development of the TLSI cluster was the continued enhancement of the region’s reputation as a centre for maritime excellence, although the policy’s focus changed markedly to encompass the international marketplace. This change in focus was driven by the continued success of Incat’s innovative product line in the domestic ferry transportation market. Through the use of government sponsored trade missions and the associated negotiation activities, the Tasmanian government used the success of Incat to illustrate the region’s maritime competency to international buyers of these products, in turn facilitating an increase in the international demand conditions for Incat’s production. The Tasmanian government also applied pressure on the

remainder of the TLSI cluster firms, and indeed the region's maritime industry as a whole, to similarly increase the quality of their production in line with the growing international reputation of the region. The Tasmanian government helped the region's shipbuilding and maritime manufacturing firms to achieve high quality production by maintaining its existing lobbying efforts for additional infrastructural funding for the industry. As Premier Rundle stated on the matter of federal government lobbying:

We certainly put in a lot of effort on that using our Federal members and Federal Liberal members as well, there were direct representations made to Canberra by the State Government and also by our Federal Senators. But, they were all on the job, there was no doubt about that, because obviously it was a very important industry, employing probably about 1,000 at that stage (Tony Rundle. Personal Interview, 2002).

Specifically, the Tasmanian government undertook political action to secure additional funding for the educational and R&D requirements of the industry. As with its direct support for Incat's needs, however, the Tasmanian government only lobbied for additional federal government funding after its need was recognised by the private sector, and where the private sector firms could demonstrate that these needs were necessary for their future growth. The Tasmanian government's reputation enhancement strategy served to increase the demand conditions enjoyed by the state's shipbuilding industry, and in particular, for the output of the regional industry's hub-firm. It also served to apply a degree of pressure upon the hub-firm's suppliers to similarly improve their production output in line with the growing prestige of the region.

The second role undertaken by the Tasmanian government was that of direct support during Incat's sales negotiations with their potential international customers. This was directed by the incumbent state Premier at the time, through his department of economic development, most notably in the form of funding for international customer visits to Incat's factory, but also by having the Premier accompany the potential customer during their visit. On the issue of providing this form of support, Premier Field commented:

... when [Clifford] was involved with the U.K. bloke, I went out for a meal with him, to give him some comfort, so Clifford could show he had real government support and that everything was on the level. These efforts were both moral and actual support from us—which is quite important actually, so that other people know that the government backs them in their industry. With potential customers that happened more than once. I was Premier when we did that but there were other levels that it happened too, at bureaucratic and at a political level. So, if there were visitors that Bob wanted to show, “Yes, the government is supporting me.” We did as much as probably any state government could rationally do (Michael Field. Personal Interview, 2002).

As a result of the state government's policy initiative to become involved in Incat's sales negotiation process, it provided a level of prestige, moral support and sales expertise that was otherwise beyond the ability of the hub-firm to provide. Indirectly, this policy also served to highlight the supplier firms within the TLSI cluster, as their inputs into Incat's final product were also supported by the state government's involvement in the sale. As Premier Gray stated:

Well, obviously there were down-stream benefits from the catamaran sale itself—even to the creation of the lifeboat technology. We always had Incat's ship as the main product we wanted to help promote, after all the dollars and employment were so important to the state. But we also highlighted the ship's bits and pieces, like the lifeboats and the internal finishes, they were all top quality and deserved mentioning (Robin Gray. Personal Interview, 2002).

In terms of advancing the diamond factors, the Tasmanian government's second policy initiative served to develop the regional industry's firm strategy, structure and rivalry by state Premier's personal endorsement of the TLSI cluster's output. It also served to align the TLSI cluster firms' goals with that of the state government by pressuring all of the individual firms to innovate their products in line with the requirements of the hub-firm. In terms of advancing the demand conditions enjoyed by the regional industry, the state government's involvement served to enhance the legitimacy of the hub-firm's innovative product to potential international customers.

The third key role undertaken by the Tasmanian government was to undertake measures to deliberately maximise the synergistic relationship that existed between Incat and its supplier firms. Inherent in Porter's ICT is the notion that within a clustered network of firms, some forms of scale or scope economies exist through which the industrial cluster develops an internationally competitive advantage. Through its development of marine parks and industrial councils (in which firms complementary to Incat's operations can more easily interact) the Tasmanian government deliberately enabled the realisation of the synergies of both scale and scope inherent to the region's natural industry. The third state government role served to advance the diamond factors by developing the 'firm strategy, structure and rivalry' and the 'factor conditions' enjoyed by the TLSI cluster firms in residence at the Prince of Wales Bay marine park. With the TLSI cluster firms in close geographic proximity, the individual firms were better able to communicate and coordinate their interrelated production and training activities, as well as allowing them to access the advanced and specialised (and expensive) infrastructure developed for the marine park.



#### *9.2.1.3 The role of government during the maturity stage of the TLSI cluster's life cycle.*

During the maturity stage of its life cycle, three key state government roles positively influenced the development of the TLSI cluster. The first key role was the continued enhancement of the regional economy's reputation as a world centre for maritime manufacturing excellence, although the focus of its efforts changed from the singular promotion of Incat's success to incorporate the production of the entire set of industry members, be they cluster firms or otherwise. The second role was to formalise the relationships that existed within the regional shipbuilding and marine manufacturing industries. The third role was the Tasmanian government's deliberate strategy to dilute Incat's importance and impact upon the regional economy.

The first key state government role was its continued enhancement of the regional economy's reputation as a world centre for maritime manufacturing excellence. During the maturity stage however, the focus of the Tasmanian government's reputation strategy in the world shipping vessel market changed from the singular promotion of Incat's success to incorporate the output of the entire industry, be they TLSI cluster firms or otherwise. The functional strategies incorporated by the Tasmanian government included trade missions, direct involvement in the international sales negotiations process, and the provision of marketing assistance to the industry. The marketing assistance provided to the industry was specifically targeted at generating a consistent message for all of Tasmanian firms in the international marketplace.

The policy to incorporate the entire set of cluster firms developed the demand conditions for the regional industry, with the region now marketed as a 'one-stop-shop' for a wide variety of innovative and high-quality maritime production, not simply fast catamaran production. The state government could afford to undertake this marketing strategy given the success that the TLSI cluster firms had enjoyed both individually, and as a network, during the growth phase. For example, by the end of the growth stage of the TLSI cluster's development, each of the supplier firms had secured their own export sales independent of those associated with their alliance with Incat. Further to this, two additional TLSI cluster firms, Liferaft Systems and Richardson Devine, emerged within the industry and enjoyed immediate export success, largely due to their association with Incat and the innovative and valuable nature of their output. Two respondents, one a state Premier, the other a managing director of a cluster firm, noted that:

I think it was partly due to Incat's expertise and international recognition, and partly because of the expertise that we had developing in training of skilled people and also the growing number of companies who were out there doing internationally competitive and technically innovative products and services. Richardson & Devine, I've talked about, Muir Engineering, they have been on the international market now and being very successful. So, it was a logical bringing together of all of the expertise and skills that had been created over a period of probably 15 years – and they had reached a sort of critical mass, at a point where you really did have something to offer because they were companies that you could be confident in, had the expertise and there was a diverse range of maritime products and expertise that gave you a very marketable package (Tony Rundle. Personal Interview, 2002).

For the first five years we only supplied Incat and Austral ships. We supplied both those yards and that was 100% of our work. Then we sold our equipment to a yard in Spain five years later that was in 1997 and then it just progressed from there. Word of mouth, us being a little bit more vocal and the government supporting our attendance at international trade conventions and the product itself created quite a lot of excitement in the marine industry, people heard about it very quickly. It was the first marine evacuation system that evacuated passengers directly from a ship to a

life raft, at the time it was the largest life raft ever built and the design of our slide was quite unique. So, that created a lot of excitement. We had customers who wanted to buy it, they could see the merits of the system, the weight, the size, the performance and word spread very quickly (Michael Granger. Personal Interview, 2002).

The second key role was to formalise the relationship between the region's entire set of shipbuilders and maritime manufacturers (TLSI cluster firms or otherwise) and the state government. After the Prince of Wales Bay maritime park was established by the Tasmanian government, the private sector firms, along with the Aluminium Welding School, formed the Tasmanian Maritime Network (TMN) within which the TLSI cluster could better develop its communications and lobbying efforts. After the Bacon Labor government's industry audit program of 1998 was completed, the TMN was restructured to form an Industry Council that represented approximately 85 percent of the region's shipbuilding and marine manufacturing firms. The industry council meetings were attended by the DSD, whose role was to provide a secretariat for the council, as well as provide a representative for the state government. The industry council meetings sought to provide the region's shipbuilding industry with a direct communications channel between the entire set of firms that accepted the invitation to join, and between the state government and the industry as a whole. The industry council arrangement also helped to ensure that the set of firms within the industry could better incorporate the success factors of the TLSI cluster into their operations, and therefore become involved in the process of further developing the regional industry's 'firm strategy structure and rivalry' to comply with world-best standards.

The third key role was the Tasmanian government's strategy to dilute Incat's importance and impact within the regional economy. The policy was implemented through the attraction of additional innovative shipbuilding firms to the region (producing vessels unlike those of Incat) in the hope that the TLSI cluster's supplier firms would have alternate sources of sales opportunities incremental to that of Incat. Premier Bacon indicated the rationale for this policy direction when he stated that:

●One of the big problems identified with the industry at that stage was that it was too reliant on Incat and that having one major company does not make a healthy cluster! You've got everybody relying on this one company ... we saw that as a weakness of the industry, that it was too reliant on one company. So, we assisted ... to establish North West Bay Ships, we have given them considerable assistance over the four years, the winches at Devine Marine, and both of those companies are prospering and growing rapidly and winning new orders ... (Jim Bacon. Personal Interview, 2002).

The Tasmanian government was able to attract additional innovative hub-firms through marketing the region's advanced infrastructure, support that was initially provided solely for the benefit of Incat. Where needed, the Tasmanian government also provided the option to undertake an equity arrangement with the new hub-firms, an arrangement that involved funding of the new firms' relocation and start-up costs, but did not involve the state government intervening in the innovative process of the firm. This policy initiative had a direct impact on the diamond factors enjoyed by the TLSI cluster (and indeed the entire industry) by effectively driving incremental demand from the international marketplace for region's maritime production. In addition, it allowed the TLSI cluster's supplier firms to develop exponentially greater linkages within the industry, and more importantly, with firms of similar importance as the original hub-firm in terms of their innovative ability and supply requirements.

In order to fully address the first research question, a discussion of the antecedent factors leading to the inception and development of the TLSI cluster is required, given that these factors set the context within which the government was to base its policy initiatives during the introductory stage of the TLSI cluster's life cycle. As noted in Chapter Two, Porter's ICT provides the concept of historical dependence to explain why many observed industrial clusters exist in their particular locations. With regards to the TLSI cluster, its formation and dominance of the international marketplace for fast ferries may be somewhat attributed to the associated human capital that has developed in the island's population.

As noted in Chapter Four, the travel and trading needs of the isolated Tasmanian community necessitated the development of an advanced and innovative shipbuilding industry evidently capable of dominating the domestic market. This historical dependence resulted in the growth of the island population's human capital in terms of a competency in innovative shipbuilding and design. More specifically, the interest in shipbuilding and design within the state was shared amongst a rather close network of individuals that enjoyed a long association with the industry. As such, the development of the island population's innovative shipbuilding competencies (i.e. human capital) aligns closely with Coleman's (1988) concept of social capital, whereby a population invest in a closed social network through which they gain access to embedded resources and knowledge that serve to enhance the returns of their common activities. This is demonstrated by the latent shipbuilding competencies that remained within Tasmania's shipbuilding industry despite its decline to virtually nil export production during the 1970s.

As noted in Chapter Four, despite the observed failure of Australia's protectionist policies in the globalising environment of the 1970s and 1980s, after the consequences of the Tasman Bridge tragedy became apparent, Tasmania's shipbuilding industry managed to grow its exports sales from virtually nil in the 1970s, to 40 percent of the global market for fast ferry transport. The implication of this contextual analysis suggests that chance events (here represented by the Tasman Bridge tragedy) may be viewed as 'economically relevant' given that the implications of its occurrence align closely with the human (and in this instance, social) capital that had developed within the region.

***9.2.2 Discussion of the results in relation to Research Question Two:  
How did the change in the importance of the TLSI cluster to the Tasmanian  
economy over time impact upon the Tasmanian government's policy development  
process?***

The second research question dealt with the manner in which the changing importance of the TLSI cluster affected its relationship with the state government, and importantly, the way it affected the state government's policy development framework. As with the first research question, Research Question Two is best discussed in terms of the TLSI cluster's industry life cycle.

***9.2.2.1 The introductory stage.***

During the introductory stage of the TLSI cluster's life cycle, the private sector firms involved in the development of the world's aluminium-hull design were operating in a highly protected and internationally uncompetitive industry. As such, the existing firms that were to eventually comprise the TLSI cluster possessed little lobbying

power with the state government in terms of demanding additional expensive infrastructure. Instead, Clifford's family business, and the friendship network within which it existed, remained solely responsible for the development of products commensurate with the prevailing domestic demand. Similarly, the Tasmanian government's economic restructuring strategy (away from a reliance on industrialisation) meant that its policy focus and major resource allocations were focused on economic development issues, and not for the specific needs of particular industries. As such, during the majority of the TLSI cluster's introductory stage, neither the private sector firms, nor the Tasmanian government, had a specific dependency on the other that necessitated the existence, or development, of a unique relationship.

Towards the end of the TLSI cluster's introductory stage, the success of Incat's innovative aluminium-based vessels on the domestic market resulted in the Tasmanian government providing incremental support to the hub-firm. The support was in the form of a loan guarantee for Incat, and was justified as an affordable 'risk' for the state government given that the support was consistent with Incat's employment potential. It was emphasised by the Tasmanian government at the time that the support given to Incat was focused on the issue of employment, and not due to the benefits now associated with industrial cluster development:

I certainly didn't have any great vision as I have explained about the shipbuilding industry. It was, here is an opportunity, let's support it.... I guess every time you supported a new industry you did think about, to be presented with claims about how much employment it was going to create, over which period it was going to create, and that obviously is a factor (Robin Gray. Personal Interview, 2002).

#### *9.2.2.2 The growth stage.*

During the growth stage of the TLSI cluster's life cycle, Incat was able to demonstrate that its aluminum-hull technology was relevant to the commercial needs of the national and international markets for fast ferries. Incat used this success, and the associated employment potential, to aggressively lobby the state government for the provision of its specialised and advanced infrastructure requirements. Using their employment and manufacturing potential as a lever in its negotiations with the state government, Incat's management threatened to relocate its operations on six separate occasions during the TLSI cluster's growth stage. In 1986, the company used the threat to relocate in order to lobby the state government to partially fund its upgrading of its Sullivan's Cove shipyard. In 1988, Incat used the threat once again to hasten their relocation to new and improved premises at the Prince of Wales bay marine park. In 1990, Incat publicly announced offers from interstate councils to relocate its manufacturing operations for additional state government funded training concessions. Again, in 1995, Incat's management used the press to lobby the state government for funding for further expansion of its manufacturing operations. In 1996 and 1997, Incat threatened to move its operations overseas else the state government undertake steps to retain the shipbuilding bounty, a grant scheme worth approximately \$35 million to the firm. Given the importance of the employment issue to the regional economy, Incat's management undertook a bargaining strategy to create a unique relationship with the state government that served to advance its infrastructure needs.



Interestingly, the state government also used Incat's relocation as a lever in the negotiation process, this time however, to justify to the state opposition and the public at large the expenditure of public funds on the expensive infrastructure requirements of the hub-firm. Even though the threat by Incat to relocate its operations away from the regional economy characterised their exchanges with the state government, the company maintained a close relationship with the local community and invested heavily in the regional economy throughout. Indeed, commenting on the repeated threats to relocate its manufacturing and employment, a number of Premiers noted that:

I didn't ever see Incat's relocation as a serious threat. There was talk about it in the press, but certainly in private discussions I was satisfied that they would be remaining here for the long term (Ray Groom. Personal Interview, 2002).

I always doubted strongly that he [Clifford] could have walked away from this facility, but he could have probably halved it and gone to another state to set up a facility because he was constantly being pursued by other state governments. But realistically, the infrastructure here was world-class and I doubt he would have had it better elsewhere (Tony Rundle. Personal Interview, 2002).

During the growth stage of the TLSI cluster's life cycle, therefore, the demonstrable success of the hub-firm in the international market enabled it to use the threat of relocation (communicated through the popular press) as a bargaining 'weapon' with the state government. Similarly, the state government was also able to use the same weapon as a 'double-edged' political lobbying tool to justify its expenditure on the expensive infrastructure to the state opposition, the federal government, and the Tasmanian tax-paying public. Interestingly, it appears that neither the hub-firm, nor the state government, realistically contemplated the firms' threat to relocate, but rather used the exchange as a somewhat rhetorical lobbying exercise. Indeed, during the period when Incat was to be placed into temporary receivership, its management

stated that one of the main reasons it was in financial difficulty was its continued employment of, and loyalty towards, its 'family of Tasmanian workers' during the world economic recession (The Mercury, 2002: 1).

#### *9.2.2.3 The maturity stage.*

During the maturity stage of the TLSI cluster's life cycle, the state government's policy priority remained that of employment within the industry, but shifted away from its singular focus on the growth requirements of Incat (as the industry cluster's hub-firm) to include the broader growth needs of the entire industry. The state government's rationale for this shift centred on its strategy to protect the industry cluster from the perils associated with its growth being driven by the success of a single firm, especially given the volatility of the world economic environment at the time. In order to safeguard the employment generated in the industry's supplier firms, the state government undertook policy initiatives that aided the establishment of a number of additional hub-firms into the regional economy.

As such, during the maturity stage of the industrial cluster's life cycle, the state government's responsibility to provide employment within the industry as a whole was asserted as its priority. Although Incat's needs were not ignored by the state government, it undertook policies that secured the employment generated by its supplier firms, mainly by diversifying their customer base within the industry. The state government's responsibility within the industry also necessitated its implementation of policies that enabled the industry to form an officially recognised coalition, whereby all of the private sector firms in the industry could benefit from the

synergistic relationship forged between the state government and the internationally competitive industrial cluster.

### **9.3 IMPLICATIONS OF THE FINDINGS OF THE THESIS.**

The implications for the role of state government in the development of a regional economy's industrial clusters are five-fold. The first implication surrounds the state government's initial response to the potential formation of an industrial cluster. In the TLSI cluster case study, the research indicates that the state government's initial support for any emergent entrepreneurial activity must be commensurate with its relevance to the region's natural advantages (and/or historical dependence) and the likelihood of their commercial success in export markets. The reverse holds that state government need to be aware that supporting entrepreneurial activity that does not closely align with the region's natural advantages and store of social capital may be likely to relocate their activity as more cost effective opportunities arise. This conclusion is echoed by Premier Bacon:

We have had some examples, back in the '80s, ...they called it "strategy" for God sake, it attracted a number of growth businesses for a while, ... and now most of them have moved to Fiji and elsewhere. It was totally unsustainable because the minute another government grants a greater subsidy, they packed up and left because there was no reason for them to be here other than the fact that the government had offered them so much money they would have been mad not to. It was totally unsustainable. So, we are very careful not to financially support activities which haven't got reasons, independent of the government's financial support, to profit in business here (Jim Bacon. Personal Interview, 2002).

The second implication surrounds the importance of the state government's role within Porter's Diamond Factor Model. The research indicates that the government of a regional Australian economy needs to position itself as an endogenous variable within Porter's (1990) Diamond Factor Model. That is, the government of a regional Australian economy cannot positively and effectively influence economic growth as an exogenous variable as assumed in the Porter's original theory. Instead, the government of a regional Australian economy has a significant role to play in its development (given its relative size to the region's gross domestic product), and the Diamond Factor model requires some alteration to reflect this central role (see Figure 9.2). As a number of Premiers noted of the government's role in a regional economy:

A government in a state like Tasmania just must be pro-active in this area of helping companies. I think the government has got to get in there and help it. Obviously there is more that we can do about that – but if our economy is to really develop, the state government must play a central role. I don't think any government yet has found all the answers and we will probably have to redefine the wheel or something like that rather than find the answer. That might make a difference but government can't afford to step back, got to step forward, be more involved, more aggressive in the area of industrial development (Ray Groom. Personal Interview, 2002).

I think the government in regional economies, particularly in a small regional economy like Tasmania, inevitably has a bigger role to play than one in larger economy. The larger economies have just gone critical mass, pretty much under their own steam and it is really an option of choice for government, how much government gets involved. A regional economy is different because of things, the government has a key role in bringing people together, providing leadership, not in how to run enterprises but to provide leadership in terms of the direction that we go, the things we concentrate on (Jim Bacon. Personal Interview, 2002).

Despite the intrusive role required by the government in the regional economy, it is important to note that at no stage did the state government seek to influence the innovative nature of the industry, which was always left in the hands of the private sector and its entrepreneurs.

Similarly, the incorporation of chance events into a government's industrial cluster policy framework is also reasonable. In Porter's original ICT, chance events, alongside the role of government, are viewed as exogenous variables that may impact on an economy's diamond factors from time to time. Given the findings of this research, chance events that align closely with the human and social capital generated within an economy may be viewed as 'economically relevant', and therefore, play a boundary setting role within which internationally competitive industrial clusters may be effectively developed by the government's interaction with the diamond factors. This notion will be further discussed in section 9.4 with the introduction of a plausible Diamond Factor Model for a regional Australian economy.

The third implication is that the role of the government in a regional Australian economy is necessarily variable over the life cycle of the industry cluster, and as a result it needs to have the capability to identify and monitor the set of natural industries that exist within the region, and their stage of development. It is also important for the government to avoid the adoption of a 'one size fits all' policy regime for its set of industrial clusters, as each will have its own requirements given their own particular stage of development. Central to this point is the need for government to be able to recognise the existing and potential synergies that exist within the industry cluster, and therefore be better able to aid the optimisation of this idiosyncratic relationship, however at all times aware not to artificially create the synergy within the industry cluster.

The fourth implication of this research is that government must provide the required infrastructural needs of the developing industrial cluster, however, the manner of its provision is clearly demonstrated by the Tasmanian government in this case. Firstly, the needs of the industrial cluster were never pre-empted by the government. Instead, the government awaited a claim from the private sector firms, with demonstrable evidence that without its provision, growth and employment within the industry cluster would decline.

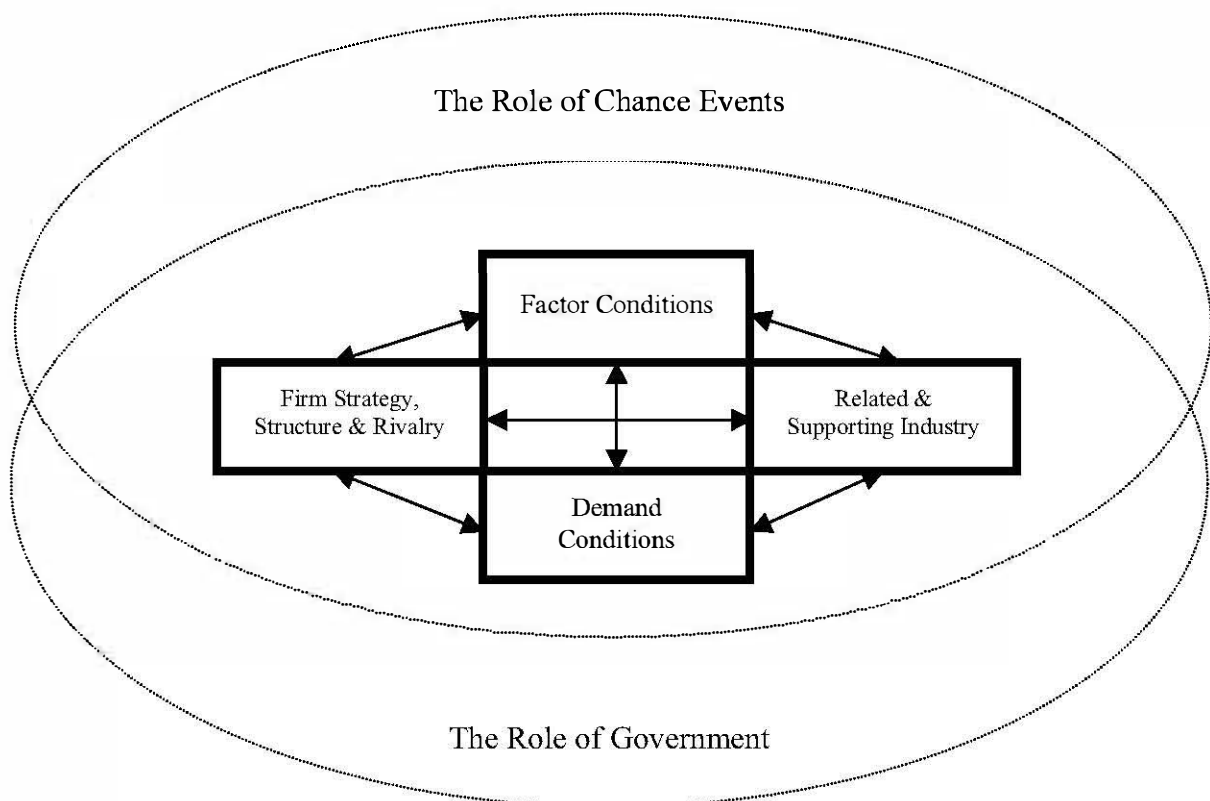
The fifth implication is the need for the government to actively dilute the importance of the original hub-firm to the regional economy as the sophistication of its supplier firms similarly advances. It is necessary to safeguard the hub-firm's suppliers (and indeed the region's entire set of industry members) against reliance upon one major entity for their sales growth. Possible methods to achieve this end include the introduction of new hub-firms to the region such that they can benefit from the advanced diamond factors that exist there (creating a set of hub-firms for the supplier firms to interact with), and to apply a positive influence upon these firms to take steps in securing their own discrete export sales.

#### **9.4 A PROPOSED MODEL FOR THE DEVELOPMENT OF INDUSTRIAL CLUSTERS IN REGIONAL AUSTRALIAN ECONOMIES.**

This section provides a concluding discussion of the thesis results, and introduces an alternative Diamond Factor Model for the Australian context. As noted in Chapter Two, Porter's ICT is based upon the observed interaction between four key diamond factors, and the exogenous variables of chance events and the role of government. In order to explain the types of industry clusters that were found to dominate particular

regions were the additional influences of historical dependence (forming part of the demand factors within the Diamond) and the stage of economic development enjoyed by the nation. Figure 9.1 depicts the original model proposed by Porter (1990) in his book *The Competitive Advantage of Nations*.

**Figure 9.1: Porter's (1990) original Diamond Factor Model.**



Adapted from Porter's (1990) *The Competitive Advantage of Nations*.

Also noted in Chapter Two, however, was the observed inadequacy of Porter's ICT to provide a framework for the development of industrial clusters for the purpose of economic development. Of greatest concern in the literature was the propensity for western governments to incorporate Porter's ICT in their economic policy development despite this apparent weakness. The observed policy failure in Australian efforts to develop industrial clusters indicated that a descriptive role for the

government in Porter's ICT remained largely undefined, and provided the rational for this thesis.

The findings of this thesis indicate that the role of government in a regional Australian economy is far more significant than the exogenous one theorised by Porter (1990). Indeed, an analysis of the TLSI cluster's development indicates that the role of an Australian government is endogenous, and arguably central, to the machinations of a Diamond Factor Model for a regional Australian economy. As such, for the purposes of providing a role for an Australian government in a regional economy, the variable cannot be considered exogenous to the diamond factors associated with Porter's ICT. Rather, the role of government must be considered fully integrated within the original diamond factors, indicating that it is directly involved in their development, and indeed very generation over time.

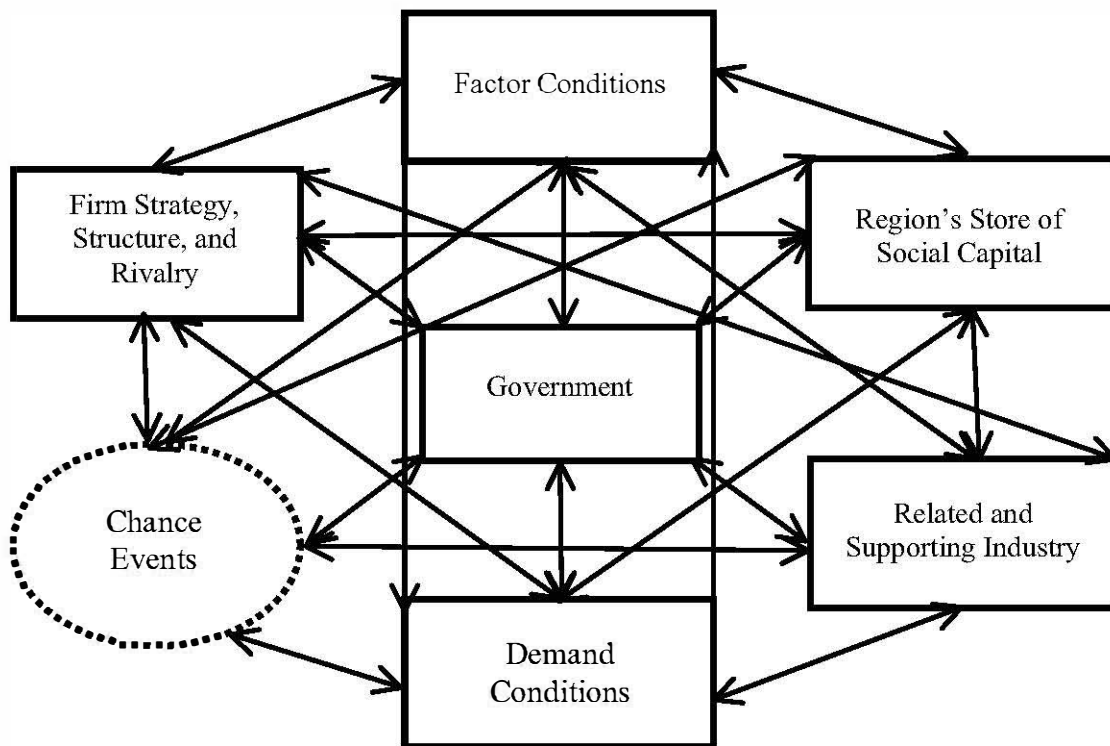
The findings of this research also indicate that theorising the role of chance events within a regional economic model also requires some attention. Under Porter's original Diamond Factor Model, chance events are similarly considered exogenous to the diamond factor's interaction, and the role that the government has to play in the development of industrial clusters. This thesis indicates that the role of the government may be directly influenced by those chance events that serve to amplify the commercial importance of regional economy's diamond factors. As such, the adapted model for a regional Australian economy includes an integrative link between the original diamond factors, and the occurrence of chance events that serve to amplify their commercial value in the international market. It similarly indicates that chance events that do not coincide with the 'natural advantages' or the advanced



social capital developed within the region should be viewed with some caution by the region's policy makers. The research also indicates that the adapted model must consider the region's store of social capital as an important variable in the development of internationally competitive industrial clusters. Unlike the economy's factor conditions, which refer largely to physical assets, the region's store of social capital refers to the latent or tacit knowledge possessed by an economy's labour market, their cultural understanding (based upon the region's historical dependencies) and their belief that efforts to leverage this knowledge and understanding in the marketplace will lead to commercial success.

Figure 9.2 (over page) illustrates a plausible model for industrial cluster development in a regional Australian economy. In line with the research findings, the role of government is altered from an exogenous variable to one that is central, and necessarily intrusive in the regional economic development process. As demonstrated in the analysis chapters, the key to an effective government role centres on the timing of its policy initiatives and the changing life cycle needs of the industry cluster. Similarly, 'chance events' are incorporated into the adapted model, and although they are represented here as an important variable, their occurrence is not considered essential to the development of internationally competitive industrial clusters. Instead, chance events are characterised as occurrences that serve to initiate industrial clustering activities. The region's store of social capital is also incorporated into the adapted model. Although it may lie dormant for some considerable length of time, the variable represents the set of intangible economic assets possessed by a region's labour market, which may also serve as a basis for the formation of the regional economy's internationally competitive industrial clusters.

**Figure 9.2: Porter's Diamond Factor Model adapted for a regional Australian economy.**



## 9.5 LIMITATIONS OF THE RESEARCH.

The findings of this inquiry need to be assessed in relation to the limitations of the chosen methodology. This research was conducted as an embedded single case study, utilising historical secondary data to construct the development of the TLSI cluster, and primary interview data to analyse the role of the Tasmanian state government therein. There are problems and limitations with both of these approaches that require some discussion. The historical data gathering process, for example, may be characterised by contextual misinterpretation of the critical events of the period, especially where the researcher is unable to directly ascertain the motivations of the actors involved (Andrew, 1985; Breisach, 1994; King, 1983). The use of semi-

structured interviews also posed methodological difficulties, as they may be time consuming, and therefore, reduces the respondent's willingness to participate (Denzin and Lincoln, 1994). In addition, the validity of the interview process may be affected by poor interviewer recall and interviewer bias.

These methodological limitations were dealt with in this research as follows. The historical data gathering process was employed solely to create a time line of events upon which the semi-structured interview questions were framed. As such, the historical data gathering process sought to provide an accurate reflection of the critical incidents that occurred throughout the TLSI cluster's developmental history. The motivations of the actors involved in the critical incidents surrounding the TLSI cluster's development were then sought through the semi-structured interview technique described in Chapter Three. Consistent with the recommendations of Andrew (1985) and Breisach (1994), this research method provided each participant the opportunity to comment upon the specific incidents relevant to their involvement, to discuss the motivational forces that culminated in their actions, and to provide additional contextual information pertaining to the incident otherwise unavailable to the researcher.

With respect to the limitations inherent in the use of semi-structured interviews, the following steps were taken. Access to the participants was organised some two months in advance of the interview process. Each participant was sent a copy of the interview questionnaire in advance of the meeting, allowing the participant to review his or her documentation of the events and therefore better inform their response. The response to this method of recruitment was the granting of access to 23 key

individuals involved in the formation and development of the TLSI cluster. As noted in Chapter Three, four of these were current heads of Tasmanian government departments (including the TLSI cluster's training entity); five were ex-state premiers spanning the TLSI cluster's history (1977-1998); one was the current state premier (1998 – present); three were senior bureaucrats that had served the state parliament from 1977-1998; one was an incumbent federal Member of Parliament for Tasmania that has served since 1977; and finally, the nine founding managers of the TLSI cluster firms (all of whom were managing their organisation in 2002). With regard to the problem of poor interview recall, the use of a tape recorder and subsequent transcriptions provided an accurate record for later analysis. The issues surrounding the problem of interviewer bias were also reduced with the use of a semi-structured interview schedule.

With regard to the generalisability of the research, the use of an embedded single case study method suggests that the implications of the research must be considered somewhat specific to the role of government in the development of a 'hub and spoke' industrial cluster in a regional Australian economy. As noted in Chapter Two, a number of different industrial cluster typologies have been found to exist, each with their own particular nuances and developmental requirements; generalising the findings of this thesis onto differing industrial cluster typologies, therefore, may be problematic. It is a recommendation of this thesis that additional research be undertaken into the developmental requirements of different industrial cluster typologies within Australia, and the government's role therein.

## **9.6 SUMMARY AND CONCLUSIONS.**

The broad aim of this thesis was to analyse the development of the TLSI cluster since its inception in 1977, and distil the positive roles that an Australian state government had therein. The results and insights provided by this research are of value for three main reasons. Firstly, the results of this research have gone some way in developing the role that government has to play in its implementation of Porter's ICT notion of economic development. Ellis & Pecotich (2002), Rajneesh (1993), and Yetton et al, (2002) have argued that the theory's major weakness is its backward looking focus, and its resultant inability to provide a framework upon which government can develop its future-oriented industrial cluster policy platform.

Secondly, this research has provided a reworking of Porter's (1990) Diamond Factor Model of national competitive advantage such that it better reflects the realities of the government role in developing ICs in a regional Australian economy. Yettin, Craig, Davis & Hilmer (1992) and Yla-Anttila (1994) have commented that another of the original theory's weaknesses has been its assumption that all developed economies around the globe mirror the conditions and government involvement experienced in the home country of its author, the United States of America. As noted however, this condition is rarely met, and as a result the assumptions of Porter's ICT rarely reflects the reality of regional economies. The reworking of the model also includes the repositioning of the role of chance events, such that it no longer remains an exogenous factor to the development of a location's competitive advantage. This research has, to some extent, indicated that chance events, and their relationship to the regional economy's store of social capital, forms the boundary within which the

government can interact with the diamond factors to facilitate the development of internationally competitive ICs.

Thirdly, this research has undertaken an analysis of the manner in which the industrial cluster's importance to the regional economy affects the manner in which the government develops its policy responses over time, and the manner in which the IC firms (and particularly Incat) simultaneously conducts its lobbying efforts towards government. Until recently, the role of the clustered entities and the government have been assumed to be separate functions within Porter's ICT. This research indicates that the role of the government, and the manner in which the clustered firms interact with the government are not mutually exclusive, but rather a complex interrelationship that serves to benefit both parties, and indirectly, the regional economy as a whole.

Overall, this research has shown that governments in regional economies are able to use the tenets of Porter's ICT as a framework for developing internationally competitive industrial clusters, albeit in a modified form. The challenge from this point onwards, is the continued modification of the government's role in Porter's ICT for the number of different industrial cluster typologies that exist, and the manner in which both the industrial cluster entities, and regional government, can best integrate their particular operations in the continued development of the region's competitive advantage.

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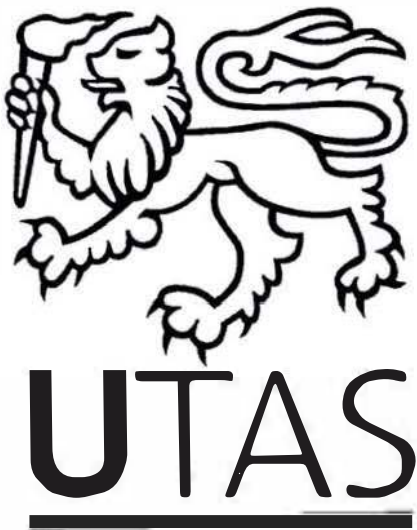
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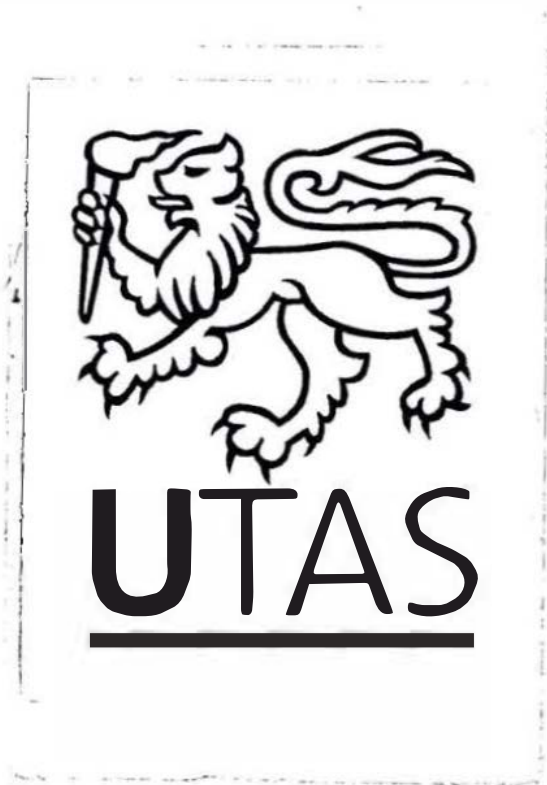
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## Appendix A:

### Case Study Protocol.



## **APPENDIX A: CASE STUDY PROTOCOL**

### **1. PROPOSED TITLE OF THE RESEARCH PROJECT.**

Industrial Cluster Development: The Role of Government in a Regional Australian Economy.

### **2. RESEARCH OBJECTIVES.**

- 1) To generate an historical time line of events and critical incidents relating to the formation and development of the Tasmanian Light Shipbuilding Industry cluster (the TLSI cluster).
- 2) To determine the key government officials (both elected and bureaucratic) that undertook activities critical to the development of the TLSI cluster in the regional Tasmanian economy.
- 3) To determine the role that regional governments can play in the development of internationally competitive industrial clusters over the stages of its life cycle.

### **3. SIGNIFICANCE OF THE PHENOMENA OF INTEREST.**

The current theory concerning industrial cluster development does not prescribe the role that Australian government needs to play in their formation. This is especially interesting given the prominent role that the government is given in the current industrial clustering theory (i.e. Porter's 1990 ICT). An opportunity exists to better define the government's role in developing internationally competitive industrial clusters (whilst concurrently avoiding the implementation of protectionist policies). The research is perhaps even more significant given Australia's poor experience at developing internationally competitive industrial clusters over the past decade.

### **4. RESEARCH QUESTIONS.**

In order to achieve the research objectives set in this thesis, the following research questions will be posed by the researcher.

**Research Question 1:** *What role did the Tasmanian Government play in the development of the TLSI cluster since its inception in 1977?*

**Research Question 2:** *How did the change in the importance of the TLSI cluster to the Tasmanian economy over time impact upon the Tasmanian government's policy development process?*

In order to allow the researcher to answer these research questions, a series of 'semi structured' interview questionnaires will be devised for the participants. The series of interview questionnaires will be similar in that they will ask the same generic sets of questions dealing with the nature of the participant's involvement with the TLSI cluster's development over time. However, the interview questionnaires will be specific in that there will be an emphasis on the critical incidents particular to their involvement. Broadly, there are two main areas of inquiry:

1. General information concerning the key government officials that have interacted with the TLSI cluster in terms of facilitating its development; and,
2. Specific questions related to the rationale of the policy choices (or other activities) undertaken by the key government officials in terms of facilitating the development of the TLSI cluster.

Copies of the interview questionnaires are attached.

## **5. SELECTION OF THE RESEARCH RESPONDENTS.**

The identification of the government heads to approach will be ascertained through secondary data analysis of newspaper, television, and government reports of the critical historical incidents surrounding the firms currently forming the Tasmanian Light Ship Cluster. In addition, exploratory research will be undertaken in the form of interviews with the TLSI cluster entities in order to confirm the importance of the list generated from the secondary data analysis, and to identify other government officials with whom they have had significant dealings.

## **6. RECRUITMENT OF THE RESEARCH PARTICIPANTS.**

Each of the interviewees (including the TLSI cluster entities) will be initially approached by telephone, where the purpose of the research was made clear to them (i.e. the government's role in developing the TLSI cluster). At the end of the telephone conversation (a preamble is attached), the participant will be asked whether they would agree to take part in the research project. Upon their agreement, the participant will be informed that the telephone conversation would be confirmed by mail, and that a 'consent' and 'information' form would be sent to them detailing the project and the nature of their direct involvement. The 'consent' form will clearly state the time and location of the interview (as would have been determined as part of the initial phone call); the 'information' sheet will provide the participant with the specific questions to be asked of them, as well as the specific 'critical incidents' to be commented upon. The participants will be informed that the interview is to be recorded onto audiotape, and that these tapes are to be held in secure storage for a period of five years.



## **7. DATA COLLECTION AND MANAGEMENT TECHNIQUES.**

Both past and present heads of federal government departments and agencies are to be approached to ascertain their [department's] role in developing the TLSI Cluster between 1977-2002. The respondents will be asked to comment, where possible, on their involvement in developing and facilitating the TLSI cluster, as well as provide a rationale for their department's actions at critical junctures in time (i.e. historical incidents as identified by secondary data analysis). The informants will not be asked to comment on the actions of others during the interview process, only their own particular involvement and perspective. This information will be gathered through the use of semi-structured face-to-face interviews, recorded onto audiotape. An example of such an interview questionnaire is attached.

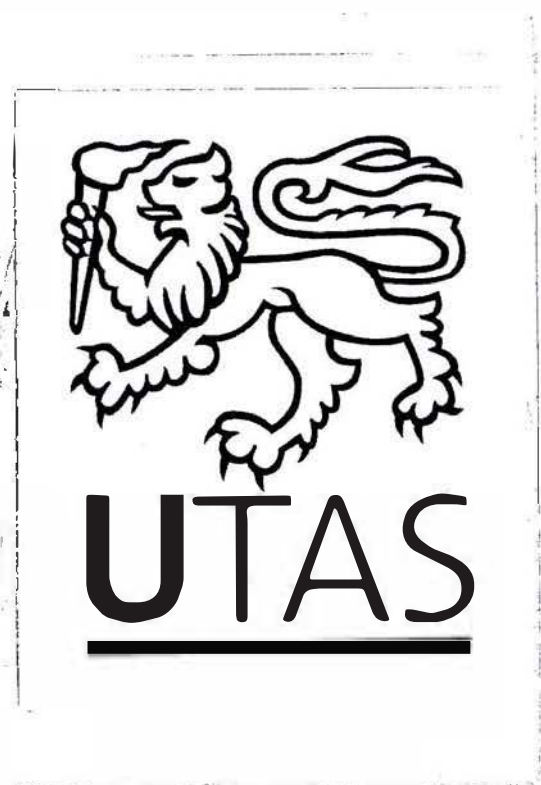
Upon meeting the respondent, the investigator will request the consent form prior to the commencement of the interview process, and ask whether the respondent is happy to answer the research questions posed. Where possible, the interviews will be conducted at the participants' workplaces. Where this is not possible, arrangements will be made to locate the interview in a time and place convenient to the respondent. Further permission will be requested to audiotape the interview to ensure that the respondent is at ease with the recording process. It will also be made clear how the information they provide will be stored, and that any papers generated from the research would be sent to them for prior approval before publication.

## **8. DATA ANALYSIS TECHNIQUE.**

The data gathered during the interview process will be imported into the NUD\*IST (version six) software program, where concepts pertinent to the research questions (and their interrelationships) will be coded for further analysis. The coding of the interview data will facilitate the researcher in distilling the important actions and policy rationales were undertaken by the key actors, and assist in the integration of said actions and policy rationales into the historical context within which they were made.

## Appendix B:

Interview Questionnaires for the key respondent groups.



**APPENDIX B: Interview Questionnaire Sheet for managers of the TLSI Cluster Firms.**

1. Can you tell me a little about the history of your company? When was it established? What were its origins? What does it attempt to achieve?
2. What were the main reasons for choosing Tasmania as a location for your business?
3. Do you believe that the state government has had much influence concerning the expansion and international success of the Tasmanian Shipbuilding Industry?
4. Which state government representatives have you had significant dealings with over the history of your company? How?
5. Which Federal government representatives have you had significant dealings with over the history of your company? How?
6. Which local government representatives have you had significant dealings with over the history of your company? How?
7. Have you experienced any government action that has greatly benefited your company?
8. Have you experienced issues that have been detrimental to your business operations?
9. Are you a member of a peak body organisation? Which one? Are they effective at negotiating with the government?
10. Do you tend to deal with government on a regular consultative basis?
11. Does the government tend to approach your company on a consultative basis?
12. What in your opinion is the role of the state government have in facilitating business growth in Tasmania?

## **APPENDIX B: Interview Questionnaire Sheet for State Premiers**

1. How did your government perceive Tasmania's shipbuilding industry when you came to power in INSERT YEAR HERE? Did you consider it a single business industry? Did you consider it a network of firms?
2. In what ways did your government directly assist the development and growth of the Tasmanian Shipbuilding Industry (policy initiatives/agencies)? What influenced this choice (i.e. Federal policy, politics)?
3. In what ways did your government indirectly assist the development and growth of the Tasmanian Shipbuilding Industry (policy initiatives/agencies)? What influenced this choice (i.e. Federal policy, politics)?
4. When implementing your government's policies, were you thinking 'cluster/network development' or 'firm development'?
5. On what basis did your government form its policy base for cluster/network development (Literature, consultants, case study, world best practices)?
6. Did your government consider other Tasmanian industries or sectors when developing your Shipbuilding Industry policies (education implications etc)?
7. What was your government's role in terms of lobbying the Federal Government on the Tasmanian industry's behalf?
8. What time frame did you have in mind when developing your government's policies regarding the Tasmanian Shipbuilding industry?

### **Specific Circumstances FOR THIS PREMIER**

**LIST HERE THE MAJOR POLICY INITIATIVES OF THIS PREMIER'S GOVERNMENT. WHAT WAS THE DEVELOPMENTAL STRATEGY OF THESE POLICIES FOR THE TASMANIAN SHIPBUILDING INDUSTRY?**

**APPENDIX B: Interview Questionnaire Sheet for Heads of Government  
Departments.**

Please find below the list of questions to be asked during our interview session on  
INSERT DATE AND TIME AND LOCATION HERE.

1. Can you tell me about the role and function of the GOVERNMENT AGENCY  
OR DEPARTMENT NAME HERE?
2. Does the GOVERNMENT AGENCY OR DEPARTMENT NAME HERE have  
linkages with other government departments? Why?
3. Does the GOVERNMENT AGENCY OR DEPARTMENT NAME HERE have  
linkages with the federal government? Why?
4. Does the GOVERNMENT AGENCY OR DEPARTMENT NAME HERE have  
linkages with the private-sector shipbuilding industry network? Why?
5. Does the GOVERNMENT AGENCY OR DEPARTMENT NAME HERE have  
linkages with a peak marine body in Tasmania? Why?
6. Did your department have any input into the state government's Industry Audits in  
1998? Or the Industry Development Plans of the 1990s?
7. How has the GOVERNMENT AGENCY OR DEPARTMENT NAME HERE  
helped the relationship between the government and the private sector  
shipbuilding industry?
8. Could you please comment on the following characteristics of your department?

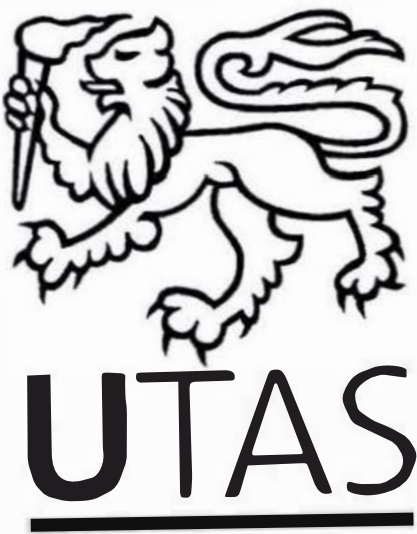
**LIST HERE THE SUB-DEPARTMENTS OF THE DEPARTMENT OR  
AGENCY - ASK WHETHER THESE HAVE HAD INPUT INTO THE  
TASMANIAN SHIPBUILDING INDUSTRY.**

10. Could you please comment on the following GOVERNMENT AGENCY OR  
DEPARTMENT NAME HERE initiative?

**LIST HERE THE INITIATIVES SPECIFIC TO THE TASMANIAN  
SHIPBUILDING INDUSTRY UNDERTAKEN BY THE GOVERNMENT  
DEPARTMENT**

## Appendix C:

### The QSR NUD\*IST Coding Index Tree.



## APPENDIX C: The QSR NUD\*IST Coding Index Tree

### **(1) What is Government?**

- (1 1) Government Agencies
  - (1 1 1) D.S.D
  - (1 1 2) Workplace Standards
- (1 2) Parliamentarians
- (1 3) Federal Government
  - (1 3 1) ABS
  - (1 3 2) CSIR●
  - (1 3 3) Maritime Safety Authority
  - (1 3 4) Australian Defence Force
  - (1 3 5) National Training Authority
  - (1 3 6) ●z Industry
  - (1 3 7) DFAT
  - (1 3 8) National Industry Extension Service
  - (1 3 9) Austrade

### **(2) Role of Government**

- (2 1) Job Creation
- (2 2) Economic Reform
  - (2 2 1) Consultants
    - (2 2 1 1) Inside System
    - (2 2 1 2) ●outside System
- (2 3) Industry Facilitation
  - (2 3 1) Promote Industry/Intra-govt Links
  - (2 3 2) State Reputation
  - (2 3 3) Providing Infrastructure
  - (2 3 4) Industrial Equity
  - (2 3 5) Natural Industry Development
- (2 4) Bankroll Projects
- (2 5) Cluster Policies?
  - (2 5 1) Opportunism
  - (2 5 2) Inadvertent Policy Direction
  - (2 5 3) Industry Support and Facilitation
- (2 6) Lobbying Canberra

### **(3) The Role of Chance**

- (3 1) Tasman Bridge Disaster

### **(4) Clustering in a Regional Economy**

- (4 1) Tasmanian Maritime College
- (4 2) Peak Bodies
- (4 3) TAFE
- (4 4) Tasmanian Maritime Network
- (4 5) Entrepreneurial Ability
- (4 6) Support for Incat
- (4 7) Social Ties

### **(5) Facts and Figures**

**(6) Policy Implications**

- (6 1) Industry Audits
- (6 2) Federal Economic Management
- (6 3) Overcome Fear of Failure
- (6 4) Industry Life Cycle Analysis
- (6 5) Arm's Length Policy Development
- (6 6) Support Entrepreneurs
- (6 7) Reputation Management
- (6 8) Peak Body Establishment
- (6 9) Flexible policy creation
- (6 10) Getting Tas closer to Markets

**(7) Industry Demise?**

- (7 1) Lack of Trust
- (7 2) Collapse of World Market for Incat
- (7 3) Lack of Diversification by Incat

**(8) Porter's Diamond Factors**

- (8 1) Demand Conditions
- (8 2) Factor Conditions
- (8 3) Related and Supporting Industry
- (8 4) Firm Strategy/Structure

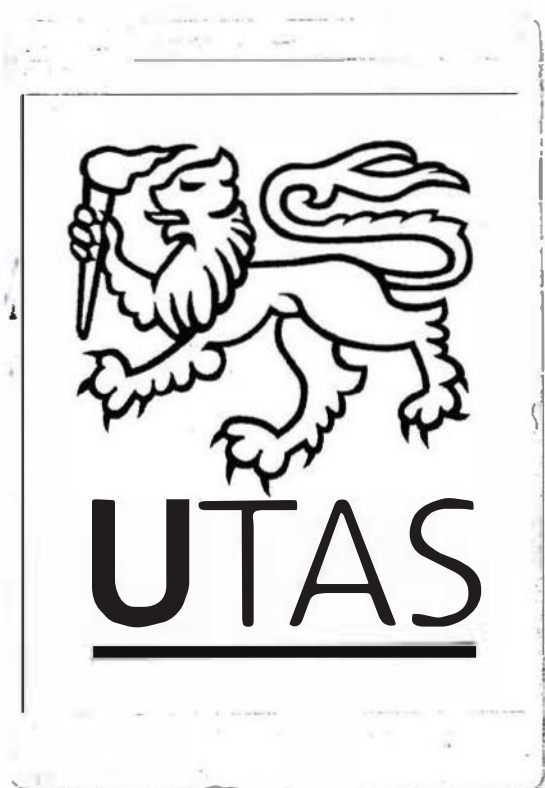
**(9) Regional Economic Issues**

- (9 1) Decentralised Population
- (9 2) Low Tax Based Revenues
- (9 3) Far from World Markets
- (9 4) Federally Dependent for Grants
- (9 5) Lack of Expertise
- (9 6) Intrusive Govt Role Required
- (9 7) Federal Policies for Regions
- (9 8) Branch Office Businesses
- (9 9) Lack of Firm Numbers



## Appendix D:

### Published Materials.



# Pages 282-306 have been removed for copyright or proprietary reasons.

Pages 282- 290 of thesis are published as:

Wickham, MD and Hanson, DJ, Industrial clustering in regional Australia: The role of chance, entrepreneurs and government in the Tasmanian Light Ships Industry, Proceedings of 16th ANZAM Australian and New Zealand Academy of Management Conference, 4-7 December 2002, Beechworth, Victoria, pp. online. ISBN 0-9750166-0-1 (2002)

Pages 291-306 of thesis are published as the following chapter:

Wickham, MD and Hanson, DJ, Incat Tasmania's race for international success: Blue-riband strategies, Strategic Management Competitiveness and Globalisation [2nd Edition], Nelson Australia Pty Limited, Robyn Flemming (ed), South Bank, Victoria, pp. 89-94. ISBN 0 17 011908 4 (2005)